T 21 s 1

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	$xy < 0$	
1.	x	y
2.	$(0.3)^{20}$	$(0.03)^{50}$
	$x > 3$	
3.	$\frac{1}{x+3}$	$\frac{1}{x-2}$

The circumference of circle P is greater than the circumference of circle Q.

4.	The radius of circle P	The diameter of circle Q

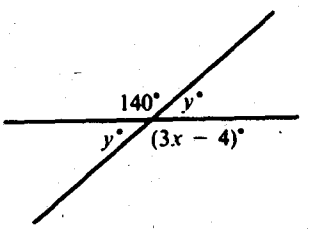
In Town X the population increased from 20,000 in 1960 to 30,000 in 1980. In Town X, the population under age ten in 1960 was 2,500, and in 1980 the population under age ten was 10 percent of the population.

5.	The increase in the population under age ten in Town X from 1960 to 1980	600

	Column A	Column B
	$s + t = 6$	
6.	$s + 2t$	$2s + t$

John is exactly 3 years younger than Sue, and Sue is exactly 4 years older than Kim.

7.	John's age now	Kim's age one year from now

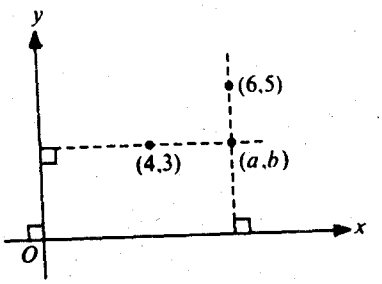


8.	x	y
	$24x = 18y$	
9.	$4x$	$3y$

GO ON TO THE NEXT PAGE.

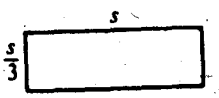
A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

Column A	Column B



10. a | b

11. $\sqrt{3}$ | $\frac{3}{2}$



The perimeter of the rectangle is 16.

12. The area of the rectangular region | 12

Column A	Column B

The average (arithmetic mean) of 10 numbers is 52. When one of the numbers is discarded, the average of the remaining numbers becomes 53.

13. The discarded number | 51

Circles R, S, and T are in the same plane, have a common center, and have radii r, s, and $r + s$, respectively, where $0 < r < s$.

14. The area of the region whose boundary consists of circles R and T | πs^2

n is an even integer.

15. The number of different prime factors of n | The number of different prime factors of $2n$

GO ON TO THE NEXT PAGE

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. A dresser drawer contains 15 garments. If 40 percent of those garments are blouses, how many are not blouses?

(A) 6
(B) 8
(C) 9
(D) 10
(E) 12

17. $1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} =$

(A) $\frac{32}{25}$ (B) $\frac{117}{60}$ (C) $\frac{52}{25}$ (D) $\frac{109}{50}$ (E) $\frac{137}{60}$

18. The length of a rectangular floor is 16 feet and its width is 12 feet. If each dimension were reduced by s feet to make the ratio of length to width 3 to 2, what would be the value of s?

(A) 0
(B) 2
(C) 4
(D) 6
(E) 8

19. If $y = 2^{(x-1)^2}$ and $x = 3$, then $y =$

(A) 8
(B) 16
(C) 32
(D) 64
(E) 128

20. How many even integers are between $\frac{17}{4}$ and $\frac{47}{2}$?

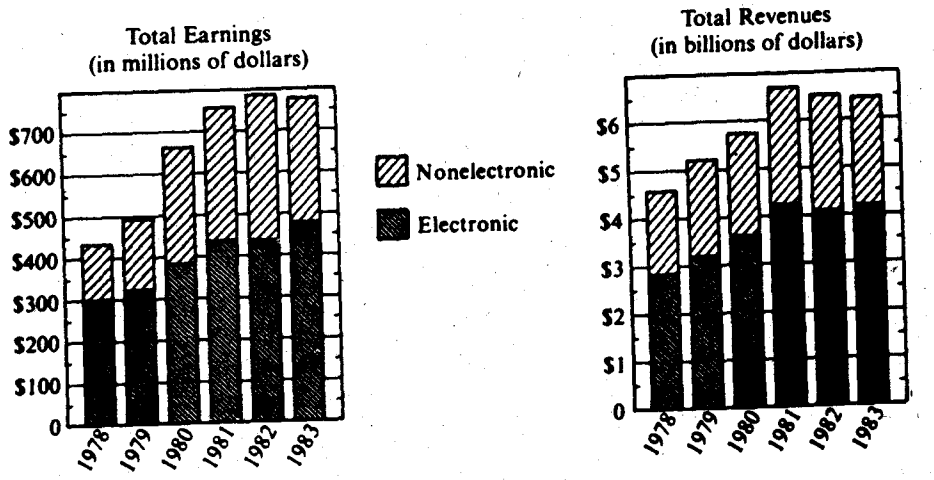
(A) Nine
(B) Eight
(C) Six
(D) Five
(E) Four

GO ON TO THE NEXT PAGE

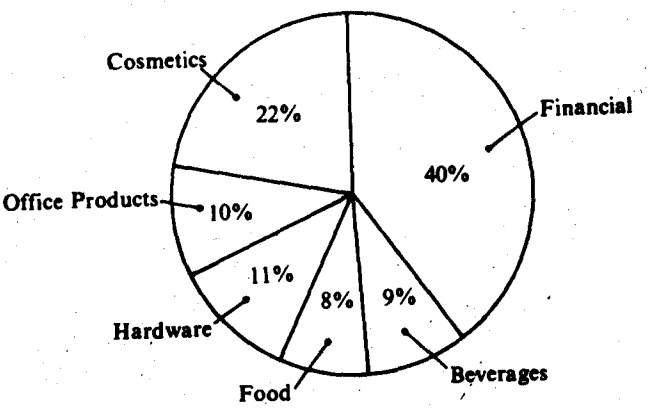
Questions 21-25 refer to the following graphs

DISTRIBUTION OF EARNINGS AND REVENUES FOR COMPANY *X*, 1978-1983 ELECTRONIC AND NONELECTRONIC OPERATIONS

(1 billion = 1,000,000,000)



Distribution of Earnings from Nonelectronic Operations, 1983
(in millions of dollars)



Note: Drawn to scale.

GO ON TO THE NEXT PAGE.

21. Total earnings from operations in 1982 were approximately how much more than total earnings from operations in 1978 ?

(A) $100 million
(B) $125 million
(C) $180 million
(D) $340 million
(E) $475 million

22. For the year in which earnings from electronic operations first exceeded $400 million, total revenues were approximately

(A) $2.8 billion
(B) $4.5 billion
(C) $5.2 billion
(D) $5.8 billion
(E) $6.7 billion

23. In 1979, total earnings for Company *X* were approximately what percent of total revenues?

(A) 1%
(B) 5%
(C) 10%
(D) 15%
(E) 60%

24. For the two years in which earnings from electronic operations were most nearly equal, the combined earnings from nonelectronic operations were most nearly

(A) $340 million
(B) $520 million
(C) $670 million
(D) $780 million
(E) $1,520 million

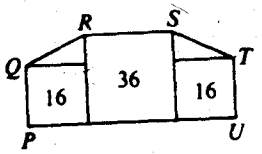
25. In 1983 earnings from financial nonelectronic operations accounted for approximately how many millions of dollars?

(A) 312
(B) 300
(C) 180
(D) 140
(E) 120

GO ON TO THE NEXT PAGE.

26. If k is an integer and $5^k < 20{,}000$, what is the greatest possible value of k?

(A) 6 (B) 7 (C) 8 (D) 9 (E) 10



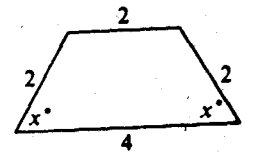
27. In the figure above, region $PQRSTU$ consists of three square regions and two triangular regions. If the square regions have areas 16, 36, and 16, what is the perimeter of $PQRSTU$?

(A) $22 + 4\sqrt{5}$
(B) $28 + 2\sqrt{5}$
(C) $28 + 4\sqrt{5}$
(D) $34 + 2\sqrt{5}$
(E) $34 + 4\sqrt{5}$

28. If x is a nonzero integer, which of the following must be a negative integer?

I. $-(3x^2 + 4)$
II. $-(-x)$
III. $(-x)^3$

(A) None
(B) I only
(C) III only
(D) I and III only
(E) I, II, and III



29. What is the area of the quadrilateral shown above?

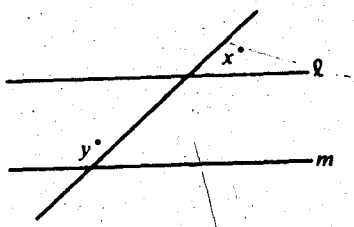
(A) $2\sqrt{3}$
(B) $3\sqrt{3}$
(C) $6\sqrt{3}$
(D) 6
(E) 8

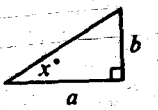
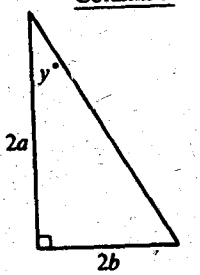
30. If the length of each of the sides of three square garden plots is increased by 50 percent, by what percent is the sum of the areas of the three plots increased?

(A) 375%
(B) 200%
(C) 150%
(D) 125%
(E) 50%

T 21 S 4

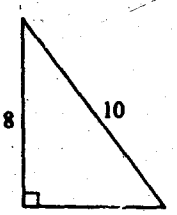
A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	$k + n = 13$ $n + 3 = 8$	
1.	k	n
	 $\ell \parallel m$	
2.	$x + y$	180
	Last year Pat earned \$700 per month for each of the first 7 months of the year and \$800 per month for each of the last 5 months of the year.	
3.	Pat's average (arithmetic mean) monthly earnings last year	\$750
	x copies of sports magazine X cost a total of \$12.	
4.	The total cost, in dollars, of m copies of fashion magazine M	$\frac{12m}{x}$
	$x = 2$ and $y = 3$.	
5.	$x + 2y$	x^y

	Column A	Column B
		
6.	x	y
7.	$\frac{10}{\frac{1}{2}}$	$\frac{1}{2}(10)$
	$x > 0$	
8.	$\frac{1}{1 + \frac{1}{x}}$	1
	$x^2 + 3 = 19$ $x < 0$	
9.	x	-4

GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

Column A	Column B
	
10. The area of the triangular region	40
$\frac{3}{7} < \frac{n}{21}$	
11. n	7
12. The area of a circular region with diameter $2k$	The area of a square region with side $2k$

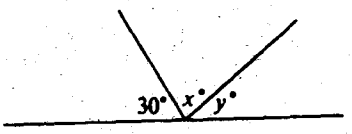
Column A	Column B
n is a positive integer.	
13. $(-1)^{n-1}$	0
$0 < m < n$	
14. $n - m$	$\frac{n+m}{2}$
RS is a diameter of a circle.	
15. The ratio of the length of diameter RS to the length of semicircular arc RS	$\frac{2}{3}$

GO ON TO THE NEXT PAGE.

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. If $6x - 4y = 2$ and $x = 3$, then $x + y =$

(A) 4
(B) 5
(C) 7
(D) 12
(E) 19

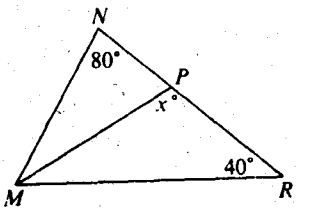


17. In the figure above, if $x = 2y$, then $y =$

(A) 50
(B) 40
(C) 30
(D) 20
(E) 10

18. Sue drives 10 miles from home to work. If she could average 50 miles per hour, how many minutes would it take her to drive from home to work?

(A) 20
(B) 18
(C) 15
(D) 12
(E) 10



19. In the figure above, if MP bisects $\angle NMR$, then $x =$

(A) 80
(B) 90
(C) 100
(D) 110
(E) 120

20. If $x + 2y = 2x - y$, then $x =$

(A) $-y$
(B) $\frac{y}{3}$
(C) y
(D) $2y$
(E) $3y$

GO ON TO THE NEXT PAGE.

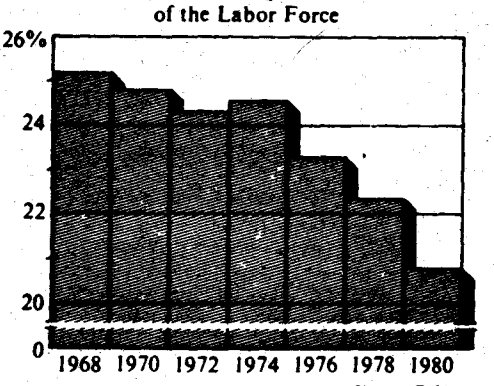
Questions 21-25 refer to the following data.

UNION MEMBERSHIP IN THE LABOR FORCE, 1968-1980

Labor Force

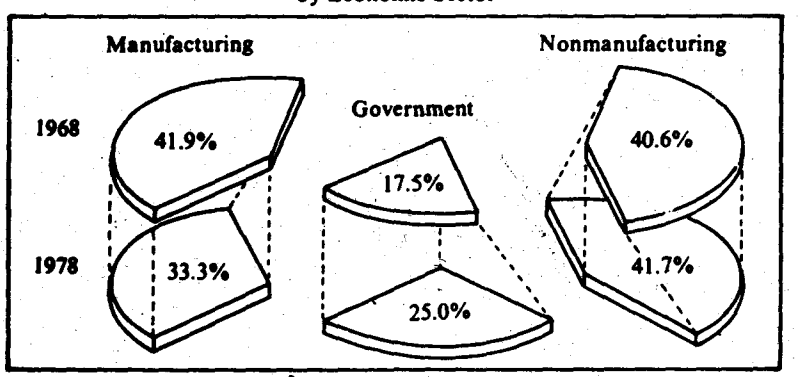
Year	Workers (in millions)
1968	75.9
1970	78.6
1972	81.7
1974	85.9
1976	87.5
1978	94.4
1980	96.5

Union Membership as a Percent of the Labor Force



Chicago Tribune.

Distribution of Union Membership by Economic Sector



Chicago Tribune.

Note: Drawn to scale.

GO ON TO THE NEXT PAGE.

21. Over which of the following two-year periods was there the greatest increase in the number of workers in the labor force?

(A) 1968-1970
(B) 1970-1972
(C) 1972-1974
(D) 1974-1976
(E) 1976-1978

22. In 1974 approximately how many million workers were members of a labor union?

(A) 17.2 (B) 19.2 (C) 21.1
(D) 24.5 (E) 85.9

23. From 1968 to 1980, the size of the labor force increased by approximately what percent?

(A) 20%
(B) 21%
(C) 27%
(D) 73%
(E) 80%

24. In 1978 there were approximately 21 million union members. Approximately how many million more of these were in the manufacturing sector than in the government sector?

(A) 8.6
(B) 7.8
(C) 6.9
(D) 5.2
(E) 1.7

25. In 1968 the number of union members in the non-manufacturing sector was approximately what percent of the total labor force?

(A) 10%
(B) 15%
(C) 25%
(D) 30%
(E) 41%

GO ON TO THE NEXT PAGE.

26. In the equation $kx + y = 16$, k is a constant. If $y = 6$ when $x = 2$, what is the value of y when $x = 4$?

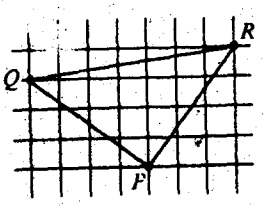
(A) -8 (B) -4 (C) $\frac{11}{4}$ (D) 5 (E) 12

27. The greatest prime factor of 162 is

(A) 2
(B) 3
(C) 29
(D) 31
(E) 81

28. If the cost of x gallons of unleaded gasoline priced at \$1.24 per gallon equals the cost of $x + 2$ gallons of regular gasoline priced at \$1.16 per gallon, then $x =$

(A) 29.0
(B) 24.0
(C) 16.5
(D) 14.5
(E) 12.0



29. In the figure above, the grid consists of unit squares and P, Q, and R are points of intersection of the grid as shown. What is the perimeter of triangular region PQR?

(A) 15
(B) 17
(C) 20
(D) $5 + 5\sqrt{2}$
(E) $10 + 5\sqrt{2}$

30. If a and b are integers and $a - b = 6$, then $a + b$ CANNOT be

(A) 0
(B) less than 6
(C) greater than 6
(D) an even integer
(E) an odd integer

FOR GENERAL TEST 21 ONLY

Answer Key and Percentages* of Examinees Answering Each Question Correctly

VERBAL ABILITY

Section 3			Section 6		
Number	Answer	P+	Number	Answer	P+
1	D	93	1	A	98
2	C	78	2	B	74
3	A	65	3	D	66
4	B	72	4	E	59
5	D	65	5	C	59
6	A	53	6	B	64
7	C	41	7	E	31
8	D	92	8	A	84
9	D	88	9	A	89
10	E	78	10	B	76
11	E	46	11	A	51
12	B	57	12	E	42
13	A	54	13	E	35
14	C	40	14	D	28
15	B	38	15	B	21
16	C	21	16	C	25
17	D	43	17	C	79
18	E	82	18	A	76
19	C	47	19	D	69
20	A	39	20	E	48
21	B	62	21	D	68
22	E	50	22	C	64
23	A	39	23	E	43
24	C	45	24	B	70
25	C	39	25	D	70
26	E	16	26	A	41
27	D	49	27	E	58
28	D	92	28	D	87
29	E	85	29	D	61
30	C	75	30	E	67
31	D	71	31	A	60
32	C	37	32	C	62
33	E	34	33	B	50
34	B	42	34	D	45
35	E	26	35	C	36
36	D	33	36	A	29
37	D	39	37	E	25
38	E	29			

QUANTITATIVE ABILITY

Section 1			Section 4		
Number	Answer	P+	Number	Answer	P+
1	D	93	1	A	92
2	A	84	2	C	92
3	B	83	3	B	82
4	D	74	4	D	83
5	B	79	5	C	89
6	D	72	6	C	78
7	C	71	7	A	79
8	A	67	8	B	78
9	C	71	9	C	74
10	A	73	10	B	70
11	A	55	11	A	72
12	C	53	12	B	63
13	B	49	13	D	61
14	A	44	14	D	44
15	C	36	15	B	38
16	C	82	16	C	84
17	E	81	17	A	83
18	C	76	18	D	77
19	B	77	19	D	66
20	A	66	20	E	69
21	D	87	21	E	85
22	E	66	22	C	58
23	C	59	23	C	48
24	C	59	24	E	57
25	E	29	25	A	39
26	A	53	26	B	76
27	C	50	27	B	54
28	B	36	28	A	44
29	B	31	29	E	39
30	D	22	30	E	36

ANALYTICAL ABILITY

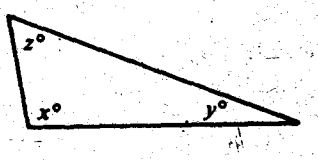
Section 2			Section 5		
Number	Answer	P+	Number	Answer	P+
1	A	83	1	A	86
2	E	77	2	D	85
3	B	68	3	C	62
4	B	76	4	E	83
5	C	42	5	D	77
6	D	67	6	B	52
7	C	61	7	E	75
8	D	44	8	D	53
9	A	91	9	B	74
10	C	87	10	A	58
11	C	28	11	E	75
12	E	86	12	E	35
13	C	30	13	E	25
14	B	53	14	D	61
15	D	39	15	C	68
16	C	52	16	D	49
17	B	55	17	B	46
18	C	47	18	C	53
19	C	76	19	B	39
20	B	59	20	B	58
21	A	42	21	E	18
22	E	29	22	E	19
23	D	37	23	A	34
24	E	43	24	D	56
25	D	42	25	A	48

*Estimated P+ for the group of examinees who took the GRE General Test in a recent three-year period.

T 22 S 52

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B

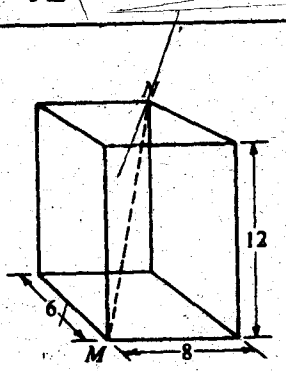


The average (arithmetic mean) of x and y is 60.

9.	z	60
10.	100^2	2^{100}

For all nonzero numbers x and y, $x \boxdot y$ is defined by the equation $x \boxdot y = \frac{x+y}{y}$.

11.	$3 \boxdot 4$	$4 \boxdot 3$



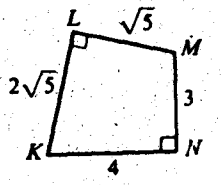
All faces of the solid above are rectangular.

12.	The length of diagonal MN	15

	Column A	Column B

n is a positive integer and $(-1)^n = -1$.

13.	n	2



14.	The area of quadrilateral region $KLMN$	12

Jill has $6x$ red marbles and $4y$ green marbles. Bill has half as many red marbles as Jill, but he has twice as many red marbles and green marbles combined as Jill.

15.	The number of green marbles that Bill has	$9x + 8y$

GO ON TO THE NEXT PAGE.

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

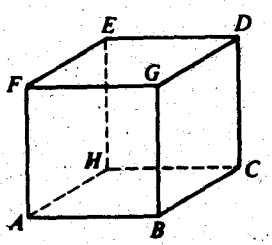
16. If $ax + by = 10$, then $2ax + 2by =$

(A) 5 (B) 12 (C) 14 (D) 20 (E) 40

Member	Votes
Ann	18
Betty	7
Charles	3
David	8

17. The chart above shows the results of an election in which four members of club X ran for president. If there were 40 members in club X, what percent of the membership did NOT vote?

(A) 4% (B) 10% (C) 11%
(D) 20% (E) 36%



18. Which of the following statements must be true about the cube above?

I. Plane FEH is parallel to plane GDC.
II. BG is perpendicular to plane FED.
III. FE is parallel to BC.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II, and III

19. $\frac{(0.1)(0.001)}{0.01} =$

(A) 0.01 (B) 0.001 (C) 0.0001
(D) 0.00001 (E) 0.000001

20. If $\frac{x}{y+1} = \frac{2}{5}$, what is y in terms of x?

(A) $\frac{2}{5}x$ (B) $\frac{2}{5}x + \frac{2}{5}$ (C) $\frac{2}{5}x + 1$
(D) $\frac{5}{2}x - \frac{2}{5}$ (E) $\frac{5}{2}x - 1$

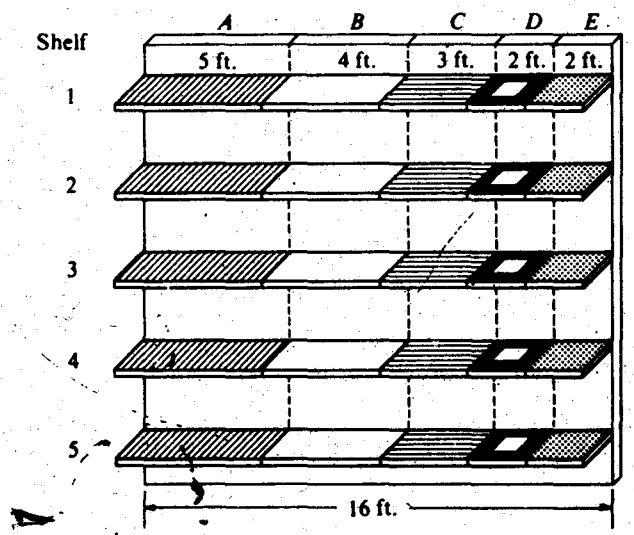
GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following table and graph.

AVERAGE WEEKLY SALES AND SHELF SPACE IN STORE *X*
FOR PRODUCTS FROM FIVE BAKERIES

Legend	Bakery	Average Weekly Sales	Percent of Total Average Weekly Sales	Shelf Space	Average Weekly Sales per Foot of Shelf Space
	A	$1,100		25 ft.	$44
	B		20%	20 ft.	$25
	C	$300	12%		
	D	$350	14%	10 ft.	
	E			10 ft.	$25
Total		$2,500	100%		

DISTRIBUTION OF SHELF SPACE
FOR FIVE BAKERIES IN STORE *X*



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21. What is the total amount of shelf space that Bakery C has in Store X?

(A) 3 ft. (B) 12 ft. (C) 15 ft.
(D) 16 ft. (E) 20 ft.

22. What is the amount of average weekly sales per foot of shelf space for Bakery D?

(A) \$21.88
(B) \$25.00
(C) \$30.00
(D) \$35.00
(E) \$49.00

23. Bakery E's average weekly sales are what percent of the total average weekly sales of products from the five bakeries in Store X?

(A) 10% (B) 14% (C) 15% (D) 25%
(E) It cannot be determined from the information given.

24. If the shelf space for Bakeries A and B were reversed and their average weekly sales per foot remained the same, then the total average weekly sales would do which of the following?

(A) Decrease by \$220.
(B) Decrease by \$95.
(C) Remain unchanged.
(D) Increase by \$125.
(E) Increase by \$345.

25. In Store X, shelf 1 accounted for $\frac{1}{4}$ of Bakery C's average weekly sales and shelf 2 accounted for $\frac{2}{3}$ as much as shelf 1. If shelves 3 and 4 each accounted for less than shelf 2, but together accounted for more than shelf 1, then which of the following could have been the average weekly sales of shelf 5 for Bakery C?

(A) \$40
(B) \$65
(C) \$80
(D) \$110
(E) \$125

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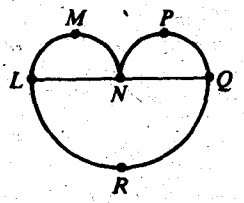


26. In the figure above, arcs LMN and NPQ are semicircles of the same size. If arc LRQ is also a semicircle and the length of line segment NQ is 5, what is the area of semicircular region LRQ?

(A) $\frac{25}{8}\pi$ (B) $\frac{25}{4}\pi$ (C) 10π

(D) $\frac{25}{2}\pi$ (E) 25π

27. City Y has installed 30 parking meters at 15-foot intervals along a straight street. What is the number of feet between the first meter and the last meter?

(A) 200 (B) 420 (C) 435
(D) 450 (E) 465

28. A company paid \$500,000 in merit raises to employees whose performances were rated A, B, or C. Each employee rated A received twice the amount of the raise that was paid to each employee rated C; each employee rated B received $1\frac{1}{2}$ times the amount of the raise that was paid to each employee rated C. If 50 workers were rated A, 100 were rated B, and 150 were rated C, how much was the raise paid to each employee rated A?

(A) \$370
(B) \$625
(C) \$740
(D) \$1,250
(E) \$2,500

29. What is the number of squares of perimeter 36 into which a rectangle with width 36 and length 72 can be partitioned?

(A) 2 (B) 4 (C) 8 (D) 32 (E) 72

$$11 \times 13 \times 17 \times 19 \times 23$$

30. A decrease of 1 in which of the factors above would result in the greatest decrease in the product?

(A) 11 (B) 13 (C) 17 (D) 19 (E) 23

T 22 S5

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
1.	$2(1 + 0)$	$(2 + 1) \cdot 0$

Room	R	S
Dimensions of Rectangular Floor	12 meters by 20 meters	12 meters by 18 meters
Cost (per square meter) for Wall-to-Wall Carpeting	\$8	\$9

	Column A	Column B
2.	The cost of wall-to-wall carpeting for room R	The cost of wall-to-wall carpeting for room S

$R = \{3, 5, 8, 9\}$
$T = \{1, 7, 8, 9\}$

	Column A	Column B
3.	The sum of the numbers in R that are also in T	The sum of the numbers that are in T

$$\frac{8}{2} = 1 + \frac{a}{3}$$

$$\frac{6}{2} = 1 + \frac{b}{3}$$

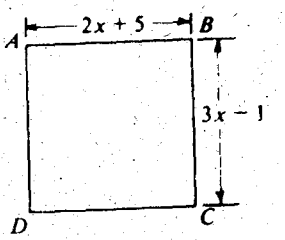
	Column A	Column B
4.	$\frac{a}{b}$	$\frac{b}{a}$

	Column A	Column B
5.	The area of a tablecloth that overhangs a square tabletop by 3 inches on all sides	The area of a tablecloth that overhangs a rectangular tabletop by 2 inches on all sides

	Column A	Column B
6.	37,652	$3(10^4) + 7(10^3) + 6(10^2) + 5(10) + 2$

$m^2 + 8m + 7 = 0$

	Column A	Column B
7.	m	1



$ABCD$ is a square.

	Column A	Column B
8.	x	

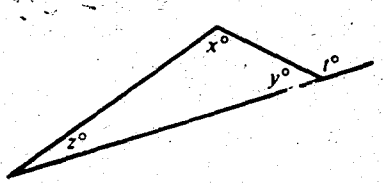
GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
9.	For year Y, the ratio of the number of Mondays in May to twice the number of Fridays in May	$\frac{1}{2}$

$$\frac{yz + xz + xy}{xyz} = \frac{16}{17}$$

10.	$\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$	$\frac{17}{16}$



11.		$x + z$

	Column A	Column B
	A certain recipe called for $3\frac{3}{4}$ cups of flour. Betty used 30 percent more flour than the recipe called for.	
12.	The number of cups of flour Betty used in making the recipe	$4\frac{7}{8}$

$$x > 0 > y$$

13.	$(x + 1)y$	$x(y - 1)$

	Rectangle R has an area of 60 square units and a perimeter of 64 units. The length of the shortest side of R is x and the length of the longest side of R is y.	
14.	$\frac{x}{y}$	$\frac{1}{15}$

	x and y are positive numbers and $\sqrt{x + y} = \sqrt{x} + 1$.	
15.	y	$2\sqrt{x} + 1$

GO ON TO THE NEXT PAGE

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. If 9 is $\frac{3}{4}$ of n, what number is $\frac{5}{6}$ of n?

(A) 10
(B) 12
(C) 14.4
(D) 15
(E) 27

Distribution	Number of Sets
0 boys 2 girls	30
1 boy 1 girl	50
2 boys 0 girls	20

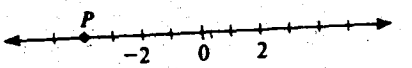
17. In the table above, the sex distribution of a group of 100 sets of twins is given. How many girls are in this group?

(A) 50 (B) 60 (C) 80
(D) 110 (E) 130

18. If $x = 3$, $y = -1$, and $z = 1$, which of the following is (are) true?

I. $x + y + z = 3$
II. $y + 2z = 2$
III. $x - 2z = 1$

(A) I only (B) III only (C) I and II only
(D) I and III only (E) I, II, and III



Note: Drawn to scale.

19. If Q is a point to the right of zero on the number line above and the distance between P and Q is 11, then the coordinate of Q is

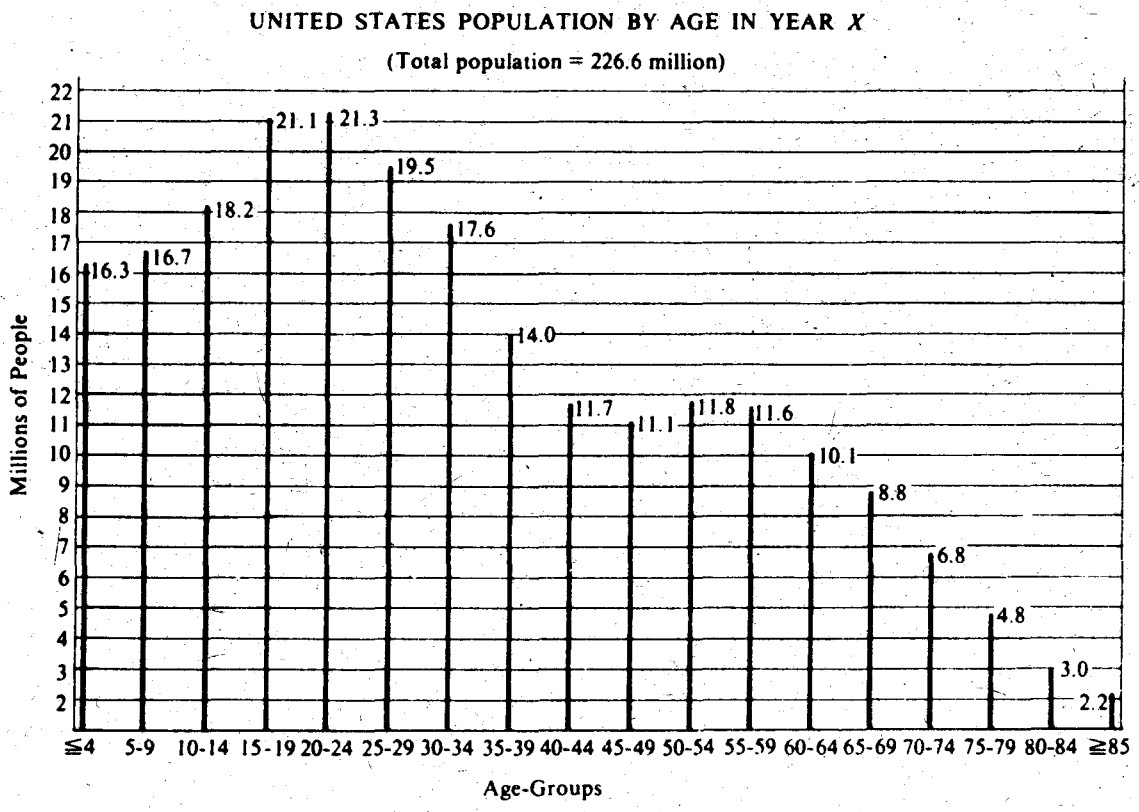
(A) −15 (B) 7 (C) 8 (D) 11 (E) 15

20. Of the following, which is closest to $\frac{0.26 \times 397}{9.9}$?

(A) 1 (B) 10 (C) 70 (D) 100 (E) 700

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following graph.



Note: Drawn to scale

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21. In year X, how many million people in the United States were aged 55 to 64?

(A) 10.1 (B) 11.6 (C) 11.8
(D) 21.7 (E) 33.5

22. In year X, how many million more people in the United States were in the 20 to 24 age-group than were in the 30 to 34 age-group?

(A) 0.2 (B) 1.8 (C) 2.3
(D) 2.8 (E) 3.7

23. By approximately what percent did the population in the 10 to 14 age-group exceed the population in the 50 to 54 age-group?

(A) 6.4%
(B) 35%
(C) 54%
(D) 65%
(E) 135%

24. If there were 3.4 million people in the United States who were 36 years of age, approximately what percent of the people from 30 to 39 years of age were 36 years of age?

(A) 10% (B) 20% (C) 25%
(D) 30% (E) 35%

25. According to the graph, which of the following statements about the population of the United States in year X must be true?

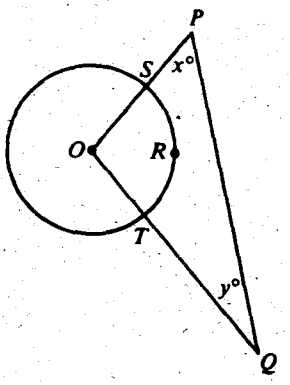
I. More people were 21 years old than any other age.
II. The ratio of the number of people in the 65 to 69 age-group to the number of people in the 70 to 74 age-group is equal to the ratio of the number of people in the 70 to 74 age-group to the number of people in the 75 to 79 age-group.
III. The 45 to 49 age-group has the fewest people.

(A) None (B) I only (C) II only
(D) I and II (E) II and III

GO ON TO THE NEXT PAGE.

26. If $xyz \neq 0$ and if $n = \frac{xz}{y}$ and $q = \frac{xy}{z}$, then $\frac{1}{nq} =$

(A) $\frac{x}{z}$ (B) $\frac{x}{y}$ (C) xyz (D) x^2 (E) $\frac{1}{x^2}$



27. In the figure above, O is the center of the circle and arc SRT has length 2π. If the circumference of the circle is 12π, what is the value of $x + y$?

(A) 60 (B) 90 (C) 120 (D) 150
(E) It cannot be determined from the information given.

28. A number is multiplied by 4 and then that product is divided by 100. This same result could be obtained by dividing the original number by

(A) 0.04 (B) 0.25 (C) 0.40
(D) 2.5 (E) 25

29. A postal clerk sold 75 stamps for a total of $10.85. Some of the stamps were 15-cent stamps and the remainder of the stamps were 13-cent stamps. How many of the stamps were 13-cent stamps?

(A) 15
(B) 20
(C) 25
(D) 30
(E) 55

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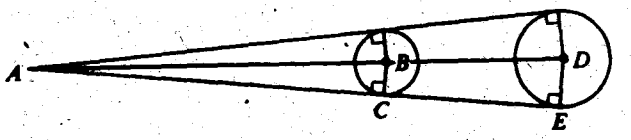


30. If B and D are centers of the circles shown in the figure above and if $BD = 12$, $BC = 2$, and $DE = 3$, then $AB =$

(A) 12 (B) 14 (C) 21 (D) 22 (E) 24

FOR GENERAL TEST 22 ONLY

Answer Key and Percentages* of Examinees Answering Each Question Correctly

VERBAL ABILITY					
Section 1			Section 4		
Number	Answer	P+	Number	Answer	P+
1	D	73	1	E	94
2	A	60	2	B	69
3	D	66	3	D	59
4	B	64	4	A	59
5	C	54	5	B	59
6	B	57	6	C	46
7	C	50	7	E	49
8	A	93	8	E	91
9	E	84	9	B	82
10	C	92	10	D	76
11	B	42	11	E	76
12	D	64	12	B	45
13	C	37	13	E	80
14	D	29	14	A	17
15	D	26	15	D	19
16	E	22	16	A	13
17	A	50	17	A	78
18	E	70	18	C	62
19	D	73	19	B	91
20	A	67	20	B	70
21	D	70	21	A	46
22	B	44	22	D	36
23	B	72	23	C	35
24	C	68	24	D	53
25	C	45	25	A	38
26	E	48	26	E	28
27	E	36	27	D	25
28	A	87	28	A	75
29	C	86	29	E	46
30	C	91	30	E	64
31	C	69	31	B	65
32	B	68	32	D	55
33	E	67	33	C	39
34	E	40	34	B	43
35	A	35	35	E	38
36	D	41	36	C	52
37	D	26	37	A	35
38	E	15	38	A	25

QUANTITATIVE ABILITY					
Section 2			Section 5		
Number	Answer	P+	Number	Answer	P+
1	B	92	1	A	93
2	C	96	2	B	78
3	A	86	3	B	87
4	A	90	4	A	81
5	B	89	5	D	85
6	D	82	6	C	79
7	A	73	7	B	77
8	D	74	8	A	68
9	C	67	9	D	59
10	B	75	10	B	56
11	B	74	11	C	61
12	A	53	12	C	51
13	D	46	13	D	50
14	B	45	14	C	33
15	C	33	15	C	29
16	D	88	16	A	83
17	B	83	17	D	78
18	E	78	18	D	83
19	A	72	19	B	87
20	E	69	20	B	73
21	C	88	21	D	91
22	D	85	22	E	94
23	A	57	23	C	31
24	B	47	24	A	70
25	C	38	25	A	51
26	D	53	26	E	59
27	C	48	27	C	44
28	E	29	28	E	43
29	D	31	29	B	42
30	A	36	30	E	39

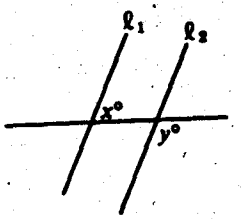
ANALYTICAL ABILITY					
Section 3			Section 6		
Number	Answer	P+	Number	Answer	P+
1	A	86	1	A	74
2	A	80	2	D	74
3	B	72	3	D	83
4	E	82	4	A	77
5	C	88	5	E	54
6	C	51	6	B	66
7	C	65	7	C	83
8	A	81	8	D	79
9	D	44	9	A	65
10	E	83	10	C	63
11	D	62	11	E	63
12	B	57	12	A	59
13	B	50	13	D	61
14	C	52	14	D	73
15	D	35	15	C	54
16	E	34	16	A	37
17	D	49	17	B	37
18	A	39	18	E	41
19	D	14	19	E	25
20	A	41	20	B	52
21	D	17	21	A	25
22	C	39	22	E	16
23	B	53	23	C	37
24	A	30	24	E	46
25	E	24	25	D	42

*Estimated P+ for the group of examinees who took the GRE General Test in a recent three-year period.

T 23 S 2

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
1.	$\frac{1}{5}-\frac{1}{6}$	$\frac{1}{30}$



ℓ_1 is parallel to ℓ_2.

2.	$x+y$	180
3.	11 percent of 20	10 percent of 21

$x^3 = -125$

4.	$5x$	x^2

A rectangular tabletop with length 5 feet and width $3\frac{1}{2}$ feet has an area of x square feet and a perimeter of y feet.

5.	x	y

	Column A	Column B
6.	The least integer x such that $5(10^x) > 25{,}643$	5

In a certain two-digit number, the units' digit is twice the tens' digit.

7.	The tens' digit	5
8.	The perimeter of a square with a side of length 2	The perimeter of a rectangle with a side of length 3

If the sum of the measures of two angles is 180°, each angle is a supplement of the other, whereas, if the sum of their measures is 90°, each is a complement of the other.

9.	The measure of an angle with a supplement that measures 130°	The measure of an angle with a complement that measures 40°

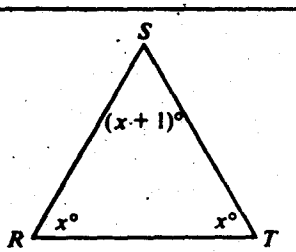
GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	$y = 5x^4 - 3x^5 + 8x^6$	
10.	The value of y if $x = -2$	The value of y if $x = 2$

	Column A	Column B
	$0 < x < 2$	
11.	x	x^2

	Column A	Column B
	The product of two integers is 6.	
12.	The sum of the two integers	3



	Column A	Column B
13.	RS	RT

	Column A	Column B
	After 2 females leave a party, there are twice as many males as females. Then 9 males leave and there are twice as many females as males.	
14.	The total number of people left at the party after the 9 males leave	8

	Column A	Column B
	In a certain store there are at least 100 pears and the ratio of the number of plums to the number of pears is 4 to 5.	
15.	The number of plums in the store	100

GO ON TO THE NEXT PAGE

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. If $2x - 5 = 25$, then $x =$

(A) 30 (B) 20 (C) 15 (D) $12\frac{1}{2}$ (E) 5

17. The temperature in a certain area increased 7 degrees, then decreased 10 degrees, and then increased 5 degrees. If the temperature before the changes was x degrees, which of the following was the temperature, in degrees, after the changes?

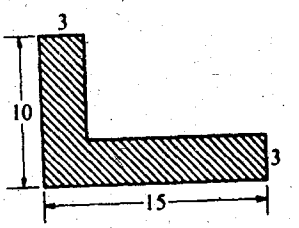
(A) $x - 8$ (B) $x - 3$ (C) $x + 2$
(D) $x + 8$ (E) $x + 10$

18. A consumer insulates a house with material bought at 20 percent off the list price of $370. If the consumer also receives a rebate of $25 from the manufacturer of the material, how much does the material cost the consumer?

(A) $238
(B) $240
(C) $263
(D) $271
(E) $325

19. If $2x + 1 = 9$ and $y = x^2$, then $y =$

(A) 25 (B) 16 (C) 8 (D) 4 (E) 2



20. In the figure above, any two intersecting line segments are perpendicular. What is the area of the shaded region?

(A) $37\frac{1}{2}$ (B) 50 (C) 57 (D) 66 (E) 75

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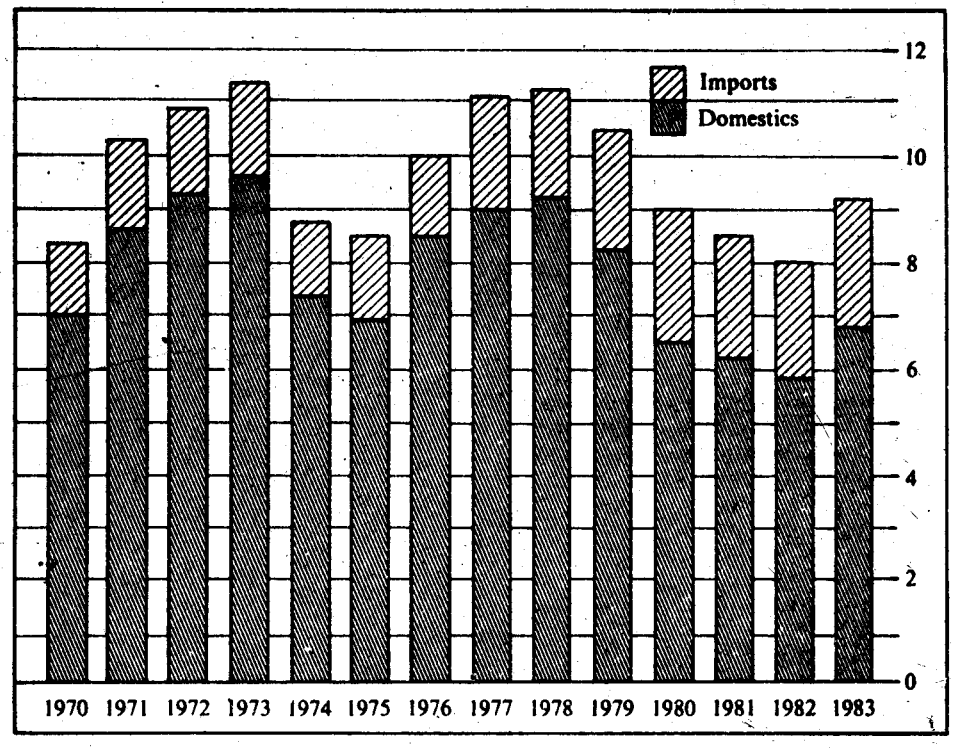
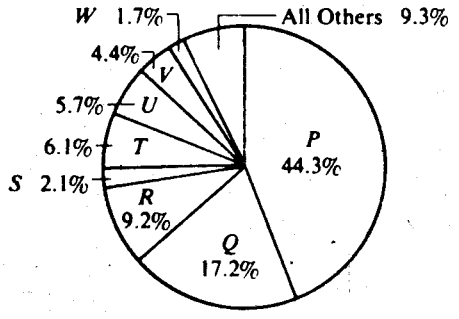
Questions 21-25 refer to the following graphs.

RETAIL SALES OF NEW CARS IN THE UNITED STATES, 1970-1983
(in millions)

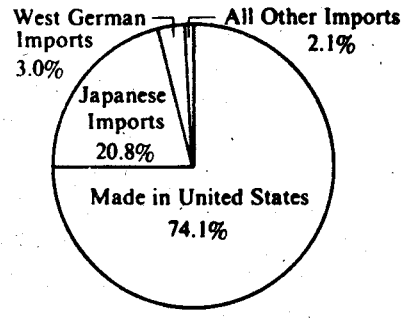


HOW THE 1983 RETAIL SALES OF NEW CARS IN THE UNITED STATES WERE DIVIDED
(100% = 9.16 million)

By Manufacturer*



By Country



*Domestic: *P*, *Q*, *R*, and *S*
Japanese: *T*, *U*, and *V*
West German: *W*

Note: Drawn to scale.

GO ON TO THE NEXT PAGE.

21. What was the last year prior to 1983 in which retail sales of new cars in the United States exceeded the retail sales of new cars in 1983 ?

(A) 1979 (B) 1978 (C) 1977
(D) 1976 (E) 1973

22. For the year shown in which the total number of new cars sold was less than the number of new domestic cars sold the previous year, approximately how many fewer new domestic cars were sold than in the previous year?

(A) 500,000
(B) 1,000,000
(C) 1,600,000
(D) 2,200,000
(E) 3,000,000

23. Approximately what percent of all the new cars sold retail in the United States in 1983 were imported from Japanese manufacturers other than companies *T*, *U*, and *V*?

(A) 2.9%
(B) 4.6%
(C) 6.9%
(D) 9.3%
(E) 11.5%

24. Approximately what percent of the new domestic cars sold retail in the United States in 1983 were manufactured by Company *Q*?

(A) 10%
(B) 12%
(C) 15%
(D) 17%
(E) 23%

25. Approximately how many of the new cars sold retail in the United States in 1983 were imported from West German manufacturers other than Company *W*?

(A) 32,000
(B) 119,000
(C) 156,000
(D) 192,000
(E) 275,000

GO ON TO THE NEXT PAGE

26. If the area of square S is 20 square centimeters, which of the following is closest to the length, in centimeters, of one side of S?

(A) 3.5 (B) 4.0 (C) 4.5
(D) 5.0 (E) 5.5

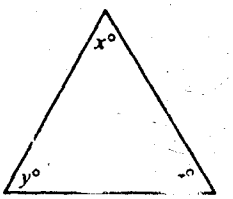
27. If N is the average (arithmetic mean) of five numbers, which of the following must be true?

I. At least one of the five numbers is greater than or equal to N.
II. At least one of the five numbers is less than or equal to N.
III. At least two of the five numbers are greater than or equal to N.

(A) I only (B) II only (C) I and II only
(D) I and III only (E) I, II, and III

28. $(2uv)^2 + (u^2 - v^2)^2 =$

(A) $2uv$ (B) $u^2 - v^2$ (C) $u^2 + v^2$
(D) $(2uv)^2 + (u^2 + v^2)^2$ (E) $(u^2 + v^2)^2$



29. In the figure above, if x, y, and z are integers such that $x < y < z$, then the least and the greatest possible values of $x + z$ are

(A) 59 and 91
(B) 59 and 135
(C) 91 and 178
(D) 120 and 135
(E) 120 and 178

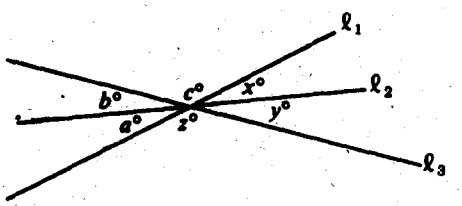
30. What is the least prime number greater than 83?

(A) 85 (B) 87 (C) 88 (D) 89 (E) 91

T 23 S 5

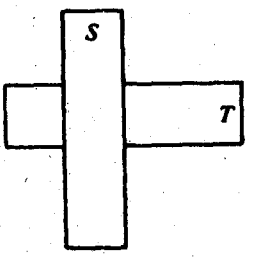
A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	$x = 4$	
1.	x^4	16



2.	$b + c + x$	$a + z + y$
3.	The number of minutes it takes a car going 50 miles an hour to go 30 miles	The number of seconds it takes a car going 50 miles an hour to go 30 miles
	$x < 0$	
4.	$3 - x$	$x - 3$
5.	$\frac{0.08}{0.002}$	40

	Column A	Column B
6.	There was a total of n television sets in a certain store. After $\frac{1}{6}$ of these were removed from the store, 5 more television sets were delivered to the store, bringing the total number of television sets in the store to 65.	75
7.	$(112)^2 - (35)^2$	$(112 - 35)^2$



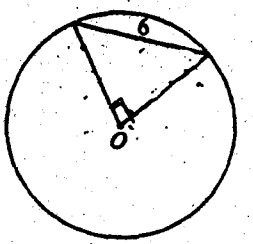
S and T are each rectangular tiles, 2 inches by 8 inches, and S overlaps T at right angles.

8.	The area of the portion of T shown that is not covered by S	12 square inches

GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
9.	$(\sqrt{2}+\sqrt{2})^2$	$4+\sqrt{2}$
10.	The number of different prime factors of 48	The number of different prime factors of 72
11.	The average (arithmetic mean) of 22, 27, and 29	The median of 22, 27, and 29



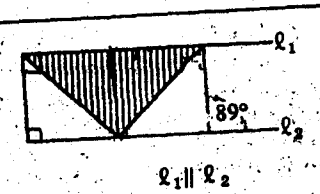
O is the center of the circle.

12.	The area of the circular region	36π

	Column A	Column B
	$g = \frac{4\pi^2 k}{a^2}$	
	a and k are positive.	
13.	a	$2\pi\sqrt{\frac{k}{g}}$

ΔRST lies in the xy-plane and points R and T have (x, y) coordinates $(0, 0)$ and $(5, 0)$, respectively. The area of ΔRST is 10.

14.	The x-coordinate of S	The y-coordinate of S



$\ell_1 \| \ell_2$

15	The area of the shaded region	The sum of the areas of the two unshaded triangular regions

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Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. If $2 \times 16 = p \times 4 \times 8$, then $p =$

(A) 8 (B) 4 (C) 2 (D) 1 (E) $\frac{1}{2}$

17. A band is paid \$700 per concert. The leader receives 25 percent of this amount and the other 5 members share the rest equally. How much does each of the 5 other members receive?

(A) \$525
(B) \$175
(C) \$140
(D) \$112
(E) \$105

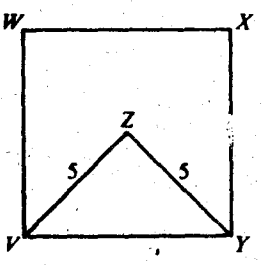
18. If $a + 3 = 4$, what is the value of $\frac{a+7}{a+3}$?

(A) $\frac{1}{2}$ (B) 2 (C) $\frac{7}{3}$ (D) 3 (E) 4

Select a number. Subtract 5 from the number. Multiply the difference by 2. Add 10 to the product.

19. For the steps above, what must be the final result?

(A) The number selected
(B) The number selected plus 5
(C) Twice the number selected
(D) Twice the number selected plus 5
(E) 0

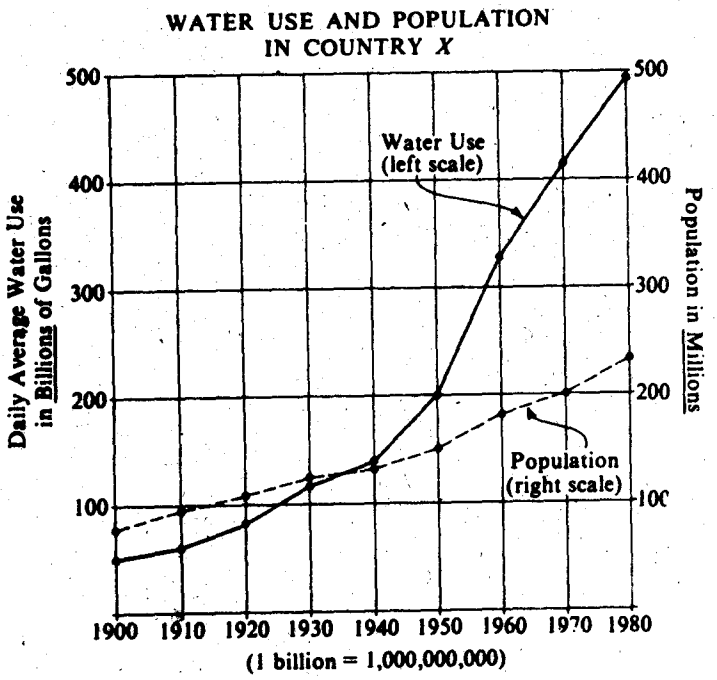


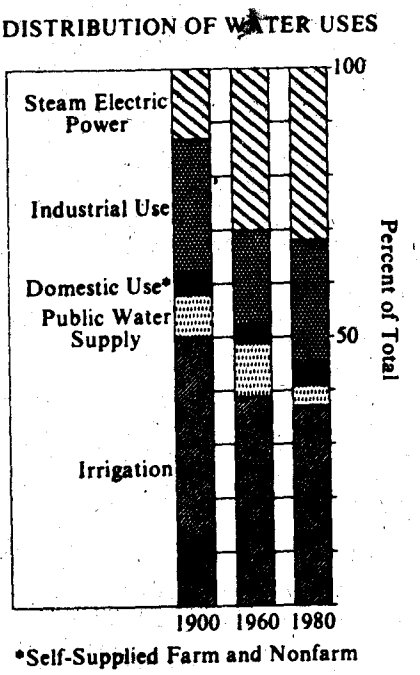
20. In the figure above, if the perimeter of $\triangle VZY$ is 17, what is the area of square region $VWXY$?

(A) 36 (B) 49 (C) 64
(D) 100 (E) 144

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following graphs.





Note: Drawn to scale.

GO ON TO THE NEXT PAGE

21. **For the year in which daily average water use was 200 billion gallons, approximately what was the population in millions?**

(A) 150 (B) 175 (C) 200
(D) 330 (E) 420

22. **The percent of water used for which of the following purposes increased from 1900 to 1960?**

I. Steam electric power
II. Industrial use
III. Public water supply

(A) I only (B) II only (C) III only
(D) I and III only (E) I, II, and III

23. **In which of the following years did the daily average number of gallons of water used equal the number of people in Country X?**

(A) 1900 (B) 1920 (C) 1940 (D) 1950
(E) None of the above

24. **In 1970, if 5 percent of the water use was for domestic purposes, approximately what was the daily average number of gallons of water used per capita for domestic purposes?**

(A) 105
(B) 50
(C) 20
(D) 10
(E) 5

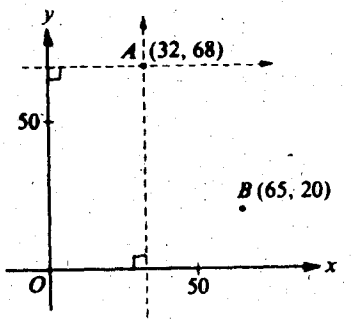
25. **If in 1900 the water use in Country K was the same as that in Country X, but increased at the constant rate of 3 billion gallons every year, then the two countries would again have had the same water use in approximately what year?**

(A) 1910 (B) 1920 (C) 1930
(D) 1940 (E) 1950

GO ON TO THE NEXT PAGE.

26. $\dfrac{4+\frac{2}{9}}{1+\frac{1}{6}} =$

(A) $\frac{133}{27}$ (B) $\frac{76}{21}$ (C) $\frac{44}{16}$ (D) $\frac{28}{11}$ (E) $\frac{5}{4}$



27. In the rectangular coordinate system above, the coordinates of points A and B are shown. If the dotted lines represent a second pair of coordinate axes with origin at A, and if the scale is the same on both pairs of axes, what are the coordinates of point B with respect to the second pair of axes?

(A) (−33, 88) (B) (33, 48) (C) (33, −48)
(D) (97, 88) (E) (97, −88)

28. If the sum of two numbers is known, which of the following is NOT sufficient to determine the values of the two numbers?

(A) One number is greater than the other.
(B) The cube of one number is 8.
(C) The product of the two numbers is 8.
(D) The difference between the two numbers is 2
(E) One number is half the other.

29. The rectangular floor of a warehouse is 300 feet wide and 350 feet long. If the width remains fixed, how many additional feet would have to be added to the length to increase the floor area by 20 percent?

(A) 42
(B) 50
(C) 65
(D) 70
(E) 84

30. For which of the following pairs of integers is the least common multiple of the integers minus their greatest common divisor the greatest?

(A) 3, 12
(B) 5, 6
(C) 10, 20
(D) 11, 12
(E) 15, 30

FOR GENERAL TEST 23 ONLY

Answer Key and Percentages* of Examinees Answering Each Question Correctly

VERBAL ABILITY					
Section 1			Section 4		
Number	Answer	P+	Number	Answer	P+
1	D	90	1	C	91
2	A	75	2	C	60
3	A	74	3	D	58
4	C	70	4	D	45
5	C	56	5	E	53
6	C	65	6	E	38
7	E	40	7	E	36
8	A	89	8	B	82
9	E	66	9	D	75
10	E	54	10	B	62
11	A	48	11	D	54
12	B	54	12	E	49
13	E	53	13	B	44
14	B	45	14	D	47
15	C	33	15	A	45
16	E	21	16	C	42
17	B	74	17	B	78
18	A	54	18	B	60
19	B	69	19	A	56
20	A	64	20	E	82
21	D	76	21	B	62
22	A	41	22	D	38
23	E	42	23	D	85
24	B	77	24	A	35
25	C	45	25	D	52
26	D	63	26	E	11
27	E	47	27	E	15
28	A	91	28	E	90
29	A	81	29	D	93
30	C	75	30	B	81
31	D	70	31	B	80
32	A	67	32	E	64
33	E	51	33	C	61
34	C	33	34	A	41
35	A	27	35	E	32
36	E	28	36	A	31
37	D	24	37	E	22
38	B	16	38	C	21

QUANTITATIVE ABILITY					
Section 2			Section 5		
Number	Answer	P+	Number	Answer	P+
1	C	91	1	A	88
2	C	86	2	C	92
3	A	85	3	B	84
4	B	77	4	A	85
5	A	76	5	C	76
6	B	68	6	B	72
7	B	53	7	A	67
8	D	77	8	C	66
9	C	68	9	A	59
10	A	66	10	C	53
11	D	57	11	B	57
12	D	19	12	D	54
13	B	45	13	C	48
14	A	38	14	D	43
15	D	33	15	A	27
16	C	96	16	D	94
17	C	92	17	E	91
18	D	90	18	B	91
19	B	86	19	C	89
20	D	75	20	B	82
21	A	88	21	A	70
22	D	52	22	D	63
23	B	64	23	E	75
24	E	18	24	A	22
25	B	50	25	E	39
26	C	70	26	B	73
27	C	54	27	C	60
28	E	37	28	A	72
29	C	27	29	D	52
30	D	37	30	D	36

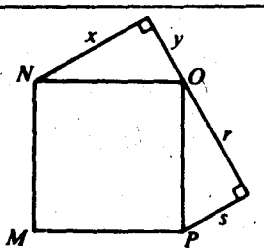
ANALYTICAL ABILITY					
Section 3			Section 6		
Number	Answer	P+	Number	Answer	P+
1	D	53	1	B	67
2	A	92	2	E	67
3	C	85	3	C	53
4	E	73	4	A	75
5	B	71	5	D	70
6	C	66	6	D	42
7	D	49	7	E	82
8	E	74	8	E	80
9	C	94	9	B	56
10	A	65	10	D	62
11	E	40	11	A	67
12	B	76	12	C	45
13	C	55	13	B	85
14	D	81	14	E	47
15	A	68	15	A	42
16	E	71	16	D	64
17	A	47	17	E	56
18	B	58	18	A	44
19	A	54	19	E	21
20	A	31	20	D	17
21	D	38	21	C	29
22	E	19	22	B	33
23	D	47	23	C	49
24	C	40	24	D	39
25	B	34	25	B	35

*Estimated P+ for the group of examinees who took the GRE General Test in a recent three-year period.

T 24 S3

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
1.	The value of $(x-5)^2$ when $x=8$	6



MNOP is a square.

2.	x^2+y^2	r^2+s^2

$a^2-3b=7$
$a=4$

3.	a	b
4.	$\sqrt{\sqrt{100}}$	5

Of 65 people polled, 20 percent said that, given the choice among the three colors red, blue, and green, they preferred the color blue.

5.	The number of people who said they preferred the color blue	One-half the number of people who said they preferred the color green

	Column A	Column B
6.	$\frac{7\times 0}{7+0}$	$\frac{1}{7}$

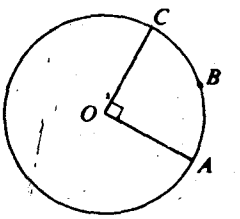
$x>0$ and $y>0$

7.	$(2+x)(3+y)$	$6+xy$

$$\begin{array}{r} 6 \\ 754\overline{)453\square} \\ 452\triangle \\ \hline 8 \end{array}$$

In the correctly worked division problem above, each of the symbols $\square$ and $\triangle$ represents a digit.

8.	$\square$	$\triangle$



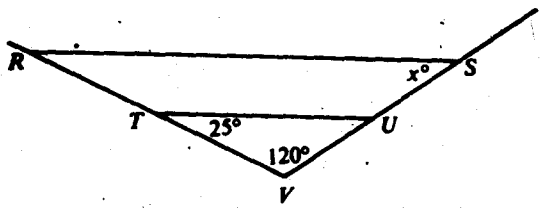
O is the center of the circle, and the length of arc ABC is 5.

9.	The circumference of the circle	5π

GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	Joanne purchased p pencils and Steve purchased 3 more than half as many pencils as Joanne.	
10.	The number of pencils Steve purchased	$\frac{p+6}{2}$
11.	The volume of a can that is a right circular cylinder with radius of 5 centimeters	The volume of a can that is a right circular cylinder with radius of 4 centimeters



$RT = TV$; $VU = US$

12.	x	30

	Column A	Column B
	$\frac{125(625)}{25} = 5^N$	
13.	N	5
	$x \neq 0$ $\frac{3}{x} + \frac{1}{4} = \frac{1}{2x}$	
14.	x	-5
	The lengths of two sides of isosceles ΔABC are 9 and 15.	
15.	The perimeter of ΔABC	33

GO ON TO THE NEXT PAGE.

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. If $\frac{x}{y} = \frac{3}{4}$, then $\frac{x+y}{y} =$

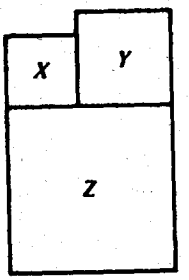
(A) $\frac{3}{7}$ (B) $\frac{4}{7}$ (C) 1 (D) $\frac{11}{7}$ (E) $\frac{7}{4}$

17. Which of the following numbers is both a factor of 48 and a multiple of 6?

(A) 2 (B) 8 (C) 12 (D) 16 (E) 18

18. If $2^n = 32$, then $n^2 =$

(A) 25
(B) 32
(C) 64
(D) 256
(E) 1,024



19. The figure above shows how three square flower beds X, Y, and Z are situated. If the area of X is 36 square meters and the area of Y is 64 square meters, what is the area, in square meters, of Z?

(A) 100
(B) 169
(C) 196
(D) 200
(E) 225

20. In a certain room, all except 18 of the people are over 50 years of age. If 15 of the people in the room are under 50 years of age, how many people are in the room?

(A) 27
(B) 30
(C) 33
(D) 36
(E) It cannot be determined from the information given.

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following chart and information.

LAST WEEK'S TOTAL HOURS WORKED AND HOURLY WAGES FOR THE CASHIERS AT MARKET *X*

Cashier	Hourly Wage	Total Hours Worked
P	$4.25	40
Q	4.75	32
R	5.00	26
S	5.50	25
T	5.50	22

Note: Last week no more than two cashiers worked at any one time, no cashier worked more than 12 hours on the same day, and on each day each cashier worked continuously.

21. What was the average (arithmetic mean) number of hours that the five cashiers worked last week?

(A) 25
(B) 26
(C) 27
(D) 29
(E) 30

22. What is the least possible number of days on which Cashier *R* could have worked last week?

(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

23. On Saturday of last week, Market *X* was open for 15 hours and exactly four cashiers worked. What was the greatest possible amount that the market could have paid in cashiers' wages for that day?

(A) $132.00
(B) $157.50
(C) $161.25
(D) $163.00
(E) $165.00

24. If Market *X* is open 96 hours per week, for how many hours last week were two cashiers working at the same time?

(A) 49 (B) 48 (C) 36 (D) 24 (E) 12

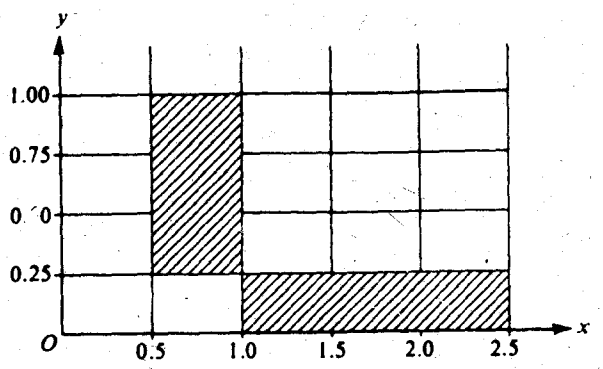
25. If Cashier *S*'s hourly wage were to increase by 10 percent and *S*'s weekly hours were to decrease by 10 percent from last week's total hours, what would be the change, if any, in *S*'s total weekly wage?

(A) An increase of $1.37
(B) An increase of $0.55
(C) No change
(D) A decrease of $0.55
(E) A decrease of $1.37

GO ON TO THE NEXT PAGE.

26. $|-2|+|7|+|-2+7| =$

(A) 18
(B) 14
(C) 10
(D) 5
(E) 0

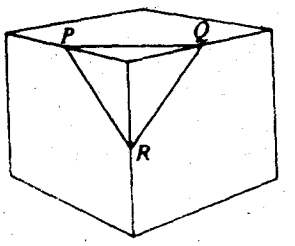


27. What is the sum of the areas of the shaded rectangular regions shown in the figure above?

(A) 3.0 (B) 2.5 (C) 1.5
(D) 1.125 (E) 0.75

28. A time-study specialist has set the production rate for each worker on a certain job at 22 units every 3 hours. At this rate what is the minimum number of workers that should be put on the job if at least 90 units are to be produced per hour?

(A) 5
(B) 8
(C) 12
(D) 13
(E) 30



29. The volume of the cube in the figure above is 64. If the vertices of ΔPQR are midpoints of the cube's edges, what is the perimeter of ΔPQR?

(A) 6
(B) $6\sqrt{2}$
(C) $6\sqrt{3}$
(D) 12
(E) $12\sqrt{2}$

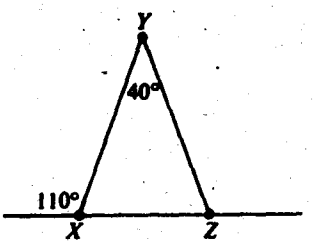
30. 3×10^4 is greater than 4×10^3 by what percent?

(A) 25%
(B) 75%
(C) $133\frac{1}{3}\%$
(D) 650%
(E) 750%

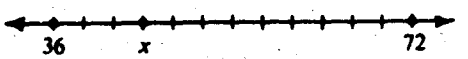
T 24 S 4

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
1.	$74x + 18$	92
2.	The number of hours required to travel 1,500 miles at an average speed of 400 miles per hour	The number of hours required to travel 200 miles at an average speed of 50 miles per hour
3.	The number of shares of stock *X* purchased for \$1,581,000	The number of shares of stock *Y* purchased for \$1,603,000



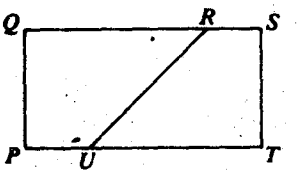
4.	*XY*	*YZ*



Note: Drawn to scale.

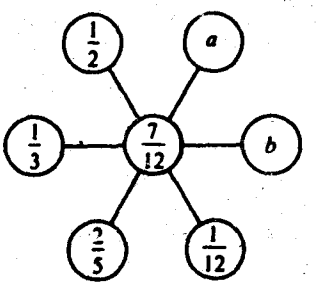
5.	x on the number line above	44

	Column A	Column B
	$x < 0$	
6.	$1 - x$	$x - 1$



The area of rectangular region *PQST* is 32.

7.	The area of region *PQRU*	The area of region *RSTU*



The sum of each pair of numbers in diametrically opposite positions is equal to the number in the center.

8.	*a*	*b*

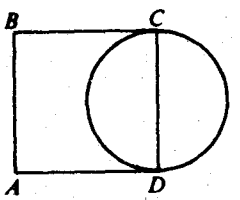
GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
9.	$\frac{1}{\frac{1}{3}+\frac{1}{5}+\frac{1}{7}}$	$\frac{1}{3}+\frac{1}{5}+\frac{1}{7}$

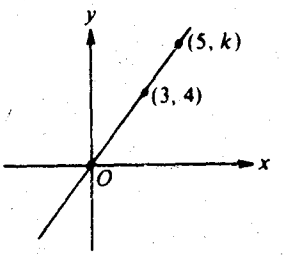
A sealed rectangular tank, which has inside dimensions of 30 by 40 by 50 centimeters, is partially full of water.

10.	The depth of the water when the tank is level and rests on one of its 30- by 50-centimeter faces	The depth of the water when the tank is level and rests on one of its 30- by 40-centimeter faces
11.	$(4+\sqrt{5})(4-\sqrt{5})$	$(-\sqrt{5}-4)(\sqrt{5}-4)$



12.	The area of the circular region with diameter CD	$\frac{3}{4}$ of the area of square region $ABCD$

	Column A	Column B
	n is a positive integer.	
13.	$(0.9)^n$	$\frac{1}{2}$



14.	k	6
15.	$8^{24}-8^{23}$	$8^{23}(7)$

GO ON TO THE NEXT PAGE

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. A linen shop has a certain tablecloth that is available in 8 sizes and 10 colors. What is the maximum possible number of different combinations of size and color available?

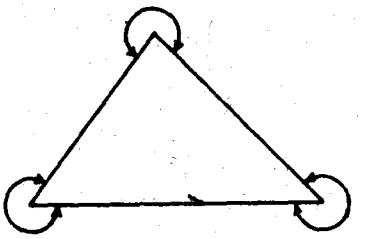
(A) 9
(B) 18
(C) 40
(D) 80
(E) 90

17. If $1 - x = 1 + 3x$, then $x =$

(A) 0 (B) $\frac{1}{4}$ (C) $\frac{1}{2}$ (D) $\frac{2}{3}$ (E) 1

18. $\frac{3}{2} + \frac{2}{3} =$

(A) 1 (B) $\frac{7}{6}$ (C) $\frac{4}{3}$ (D) 2 (E) $\frac{13}{6}$



19. In the triangle above, the sum of the measures of the three marked angles is

(A) 540°
(B) 630°
(C) 720°
(D) 810°
(E) 900°

20. Which of the following is greater than 1 ?

(A) $\frac{0.00004}{0.005}$

(B) $\frac{0.000006}{0.0001}$

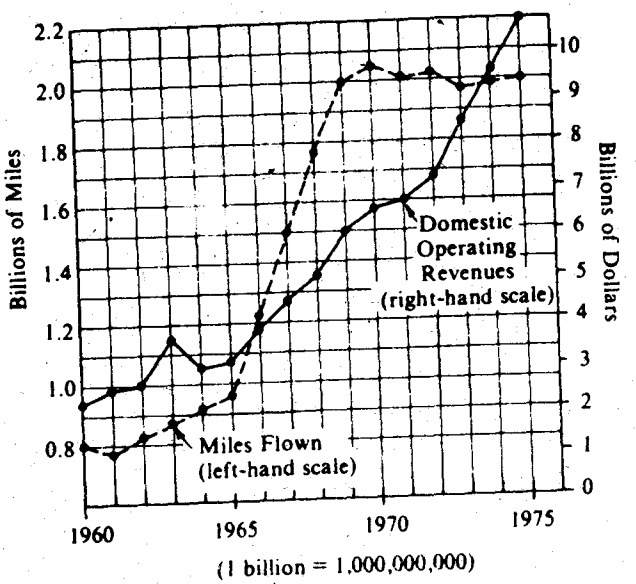
(C) $\frac{0.01}{0.003}$

(D) $\frac{0.003}{0.006}$

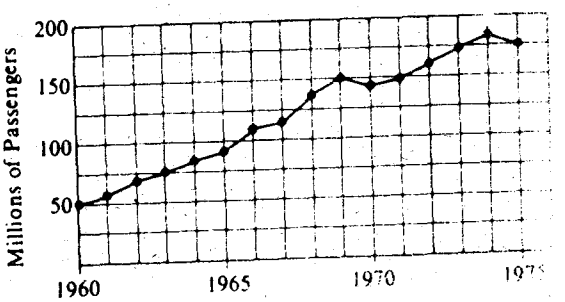
(E) $\frac{0.001}{0.01}$

Questions 21-25 refer to the following graphs.

DOMESTIC AIR CARRIERS: OPERATING REVENUES, MILES FLOWN, AND NUMBER OF PASSENGERS CARRIED, 1960 TO 1975



(1 billion = 1,000,000,000)



Note: Graphs drawn to scale.

21. In 1965 how many billions of miles were flown by domestic air carriers?

(A) 0.95 (B) 1.05 (C) 1.2
(D) 2.5 (E) 3.0

22. In which of the following years were there more passengers carried by domestic air carriers than in the year before and the year after?

(A) 1961
(B) 1965
(C) 1970
(D) 1972
(E) 1974

23. In 1969 what was the ratio of dollars of domestic operating revenues to miles flown?

(A) $\frac{4}{1}$ (B) $\frac{3}{1}$ (C) $\frac{3}{2}$ (D) $\frac{2}{3}$ (E) $\frac{1}{4}$

24. In billions of miles, approximately what was the average (arithmetic mean) number of miles flown per year by domestic air carriers from 1965 to 1970, inclusive?

(A) 1.0
(B) 1.5
(C) 2.0
(D) 4.5
(E) 6.0

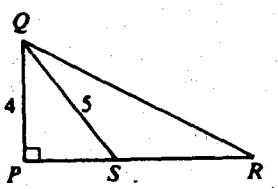
25. From 1960 to 1975, what was the percent increase in the number of passengers carried by domestic air carriers?

(A) 125%
(B) 175%
(C) 250%
(D) 350%
(E) 450%

GO ON TO THE NEXT PAGE.

26. The average of two numbers is $2x$. If one of the numbers is y, the other number must be

(A) $x + y$
(B) $2x + y$
(C) $4x + y$
(D) $2x - y$
(E) $4x - y$



27. In the figure above, the area of triangular region PQR is 36. What is the area of triangular region SQR?

(A) 30 (B) 24 (C) 18 (D) 15 (E) 12

28. If the ratio of x to y is 9 times the ratio of y to x, then $\frac{x}{y}$ could be

(A) 9 (B) 3 (C) 1 (D) $\frac{1}{3}$ (E) $\frac{1}{9}$

29. Two microphones are located 100 meters apart and each is 130 meters from the same listening station. If a transmitter is located halfway between the two microphones, what is the distance, in meters, between the transmitter and the listening station?

(A) 120
(B) 124
(C) 125
(D) 128
(E) 130

30. A phone call from City, X to City Y costs \$1.00 for the first 3 minutes and \$0.20 for each additional minute. If r is an integer greater than 3, a phone call r minutes long will cost how many dollars?

(A) $\frac{3r}{5}$

(B) $\frac{r-10}{5}$

(C) $\frac{r-3}{5}$

(D) $\frac{r+2}{5}$

(E) $\frac{r+15}{5}$

FOR GENERAL TEST 24 ONLY

Answer Key and Percentages* of Examinees Answering Each Question Correctly

VERBAL ABILITY					
Section 1			Section 2		
Number	Answer	P+	Number	Answer	P+
1	C	90	1	E	91
2	D	85	2	E	91
3	B	63	3	D	89
4	E	58	4	E	66
5	D	49	5	D	57
6	A	45	6	C	53
7	B	25	7	C	26
8	B	83	8	C	91
9	C	82	9	E	85
10	D	67	10	C	75
11	E	56	11	A	55
12	D	52	12	B	47
13	B	46	13	B	59
14	B	34	14	E	50
15	A	33	15	A	24
16	E	19	16	A	22
17	D	82	17	B	83
18	B	67	18	A	33
19	E	82	19	E	81
20	E	41	20	A	55
21	C	78	21	E	48
22	A	63	22	D	53
23	D	73	23	B	74
24	A	29	24	D	45
25	E	40	25	A	36
26	D	52	26	E	46
27	B	50	27	B	49
28	D	87	28	A	91
29	C	85	29	B	78
30	E	77	30	D	73
31	D	70	31	A	75
32	D	54	32	C	67
33	E	58	33	D	53
34	A	44	34	E	47
35	D	32	35	C	45
36	E	43	36	C	37
37	A	25	37	E	18
38	C	17	38	E	16

QUANTITATIVE ABILITY					
Section 3			Section 4		
Number	Answer	P+	Number	Answer	P+
1	A	95	1	D	83
2	C	87	2	B	86
3	A	89	3	D	93
4	B	90	4	C	83
5	D	85	5	A	80
6	B	92	6	A	82
7	A	71	7	D	76
8	B	76	8	B	73
9	A	64	9	A	62
10	C	63	10	B	66
11	D	57	11	C	54
12	A	65	12	A	47
13	C	49	13	D	52
14	B	41	14	A	33
15	D	49	15	C	23
16	E	88	16	D	93
17	C	79	17	A	87
18	A	82	18	E	89
19	C	77	19	E	63
20	E	73	20	C	79
21	D	86	21	A	87
22	C	81	22	E	76
23	C	48	23	B	52
24	A	29	24	B	73
25	E	37	25	C	43
26	B	64	26	E	52
27	E	54	27	A	42
28	D	51	28	B	36
29	B	40	29	A	48
30	D	18	30	D	37

ANALYTICAL ABILITY					
Section 5			Section 6		
Number	Answer	P+	Number	Answer	P+
1	A	94	1	B	74
2	D	76	2	A	79
3	D	68	3	B	86
4	C	90	4	B	82
5	E	72	5	C	60
6	B	72	6	E	84
7	B	76	7	D	75
8	B	58	8	B	69
9	D	60	9	C	61
10	A	68	10	C	59
11	C	68	11	A	76
12	C	65	12	C	59
13	B	56	13	A	61
14	E	55	14	C	50
15	A	57	15	D	31
16	C	54	16	A	66
17	D	48	17	A	49
18	A	34	18	E	67
19	E	34	19	E	40
20	E	42	20	A	54
21	A	32	21	E	37
22	E	20	22	E	50
23	D	49	23	D	57
24	B	55	24	D	43
25	D	33	25	B	43

*Estimated P+ for the group of examinees who took the GRE General Test in a recent three-year period.

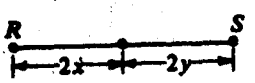
T 25 S 1

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	$S = 6+7+8+9$ $T = 9+8+7+6$	
1.	$S+T$	$4(15)$
2.	$\frac{332}{999}$	$\frac{1}{3}$

Each of w and x is less than 5 and greater than 2.
Each of y and z is less than 2 and greater than 1.

3.	$w+x$	$y+z$



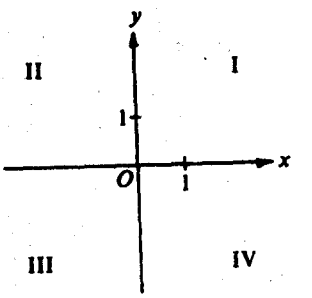
$x + y = 7$

4.	The length of segment RS	14

$2x + y = 6$
$y = x$

5.	$x+y$	$3x-2$

	Column A	Column B
	Coins are put into 5 pockets so that each pocket contains at least one coin, but no two pockets contain the same number of coins.	
6.	The least possible total number of coins in the 5 pockets	16



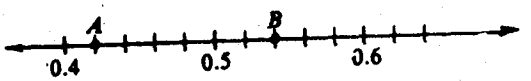
Points $(x, 3)$ and $(3, y)$ are in quadrants II and IV, respectively.

7.	x	y
	$n > 0$	
8.	$\frac{10^n}{10^{n+1}}$	$\frac{10^{n+1}}{10^{n+2}}$

GO ON TO THE NEXT PAGE

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

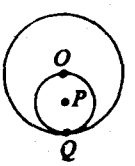
Column A	Column B



Note: Drawn to scale.

A and B are points on the number line.

9. The length of segment AB — 0.11



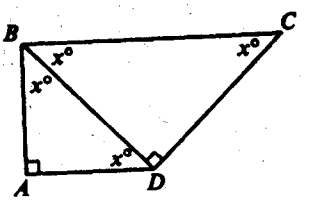
The circle with center O and the circle with center P are tangent at Q.

10. The area of the circular region with center O — Four times the area of the circular region with center P

Brand R coffee costs \$3.25 per pound and brand T coffee costs \$2.50 per pound.

11. The number of pounds of brand R in a mixture of brands R and T that costs \$3.00 per pound — 1.2

Column A	Column B



$AB = 1$

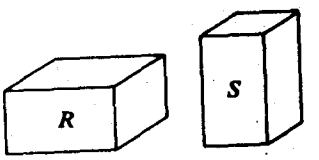
12. The perimeter of quadrilateral $ABCD$ — 6

13. The value of the units' digit in 6^{47} — The value of the units' digit in 5^{77}

For all numbers r and s, where $s \neq 0$,

$r \otimes s = \frac{10r}{s}$.

14. $(0.01) \otimes (0.01)$ — 1



The volume of block R is equal to the volume of block S.

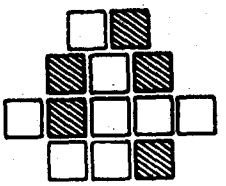
15. The total surface area of R — The total surface area of S

GO ON TO THE NEXT PAGE.

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. A certain photocopying machine can make 10 copies every 4 seconds. At this rate, how many copies can the machine make in 6 minutes?

(A) 900
(B) 600
(C) 360
(D) 240
(E) 150



17. The figure above is made up of shaded and unshaded squares of the same size. What is the ratio of the number of shaded squares to the total number of shaded and unshaded squares?

(A) $\frac{13}{5}$ (B) $\frac{8}{5}$ (C) $\frac{5}{8}$ (D) $\frac{1}{2}$ (E) $\frac{5}{13}$

18. If $a = 2$, $b = 4$, and $c = 5$, then $\frac{a+b}{c} - \frac{c}{a+b} =$

(A) 1
(B) $\frac{11}{30}$
(C) 0
(D) $-\frac{11}{30}$
(E) -1

19. In the xy-plane, which of the following points is the greatest distance from the origin?

(A) (0, 3)
(B) (1, 3)
(C) (2, 1)
(D) (2, 3)
(E) (3, 0)

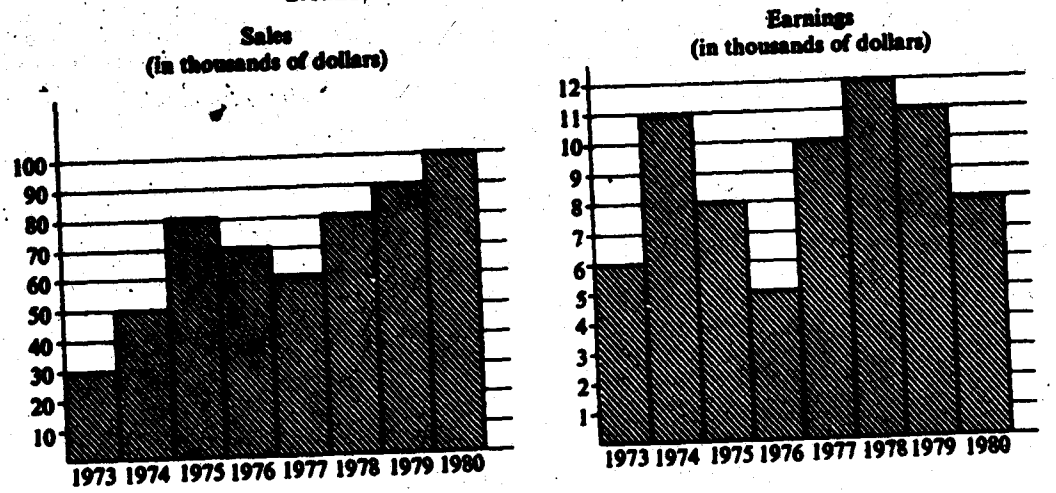
20. If $\frac{y}{x} = -1$, then $y + x =$

(A) -2 (B) -1 (C) 0 (D) 1 (E) 2

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following graphs.

SALES AND EARNINGS OF COMPANY *X*



Note: Drawn to scale.

21. For the years 1974 to 1979 inclusive, what was the amount of the greatest increase in sales from one year to the next?

(A) $5,000 (B) $10,000 (C) $12,000
(D) $30,000 (E) $80,000

22. For the period from 1973 to 1977 inclusive, what were the average (arithmetic mean) sales per year?

(A) $57,000
(B) $58,000
(C) $59,500
(D) $60,300
(E) $61,700

23. In which of the years from 1974 to 1979 inclusive, did earnings change by the greatest percent over the previous year?

(A) 1974 (B) 1975 (C) 1977
(D) 1978 (E) 1979

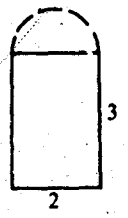
24. If at the end of 1973 Company *X* sold 30,000 shares of common stock for 35 times Company *X*'s earnings for the year, what was the price of a share of common stock at that time?

(A) $7.00
(B) $10.00
(C) $17.50
(D) $35.00
(E) $70.00

25. If Company *X* considered a good year to be any year in which earnings were at least 20 percent of sales, how many of the years shown were good years?

(A) None (B) One (C) Two
(D) Three (E) Four

GO ON TO THE NEXT PAGE.



26. A rectangular window with dimensions 2 meters by 3 meters is to be enlarged by cutting out a semicircular region in the wall as shown above. What is the area, in square meters, of this semicircular region?

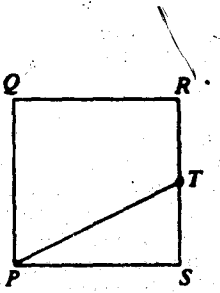
(A) $\frac{\pi}{4}$ (B) $\frac{\pi}{2}$ (C) π (D) 2π (E) 4π

27. $\frac{10^2(10^8 + 10^8)}{10^4} =$

(A) $2(10^4)$ (B) $2(10^6)$ (C) 10^8
(D) $2(10^8)$ (E) 10^{10}

28. Worker W produces n units in 5 hours. Workers V and W, working independently but at the same time, produce n units in 2 hours. How long would it take V alone to produce n units?

(A) 1 hr 26 min
(B) 1 hr 53 min
(C) 2 hr 30 min
(D) 3 hr 20 min
(E) 3 hr 30 min



29. In square $PQRS$ above, T is the midpoint of side RS. If $PT = 8\sqrt{5}$, what is the length of a side of the square?

(A) 16 (B) $6\sqrt{5}$ (C) $4\sqrt{5}$
(D) 8 (E) $2\sqrt{6}$

30. If $q \neq 0$ and $k = \frac{qr}{2} - s$, then what is r in terms of k, q, and s?

(A) $\frac{2k + s}{q}$

(B) $\frac{2sk}{q}$

(C) $\frac{2(k - s)}{q}$

(D) $\frac{2k + sq}{q}$

(E) $\frac{2(k + s)}{q}$

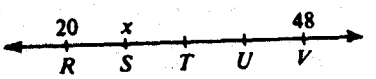
T 25 S 4

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	$x = 9$ and $y = 3$	
1.	$x^2 - 9$	$81 - y^2$
2.	26,003	$2(10^4) + 6(10^3) + 3(10)$

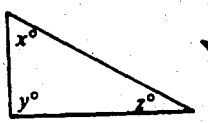
A size S soup can is 10 centimeters high and a size T soup can is 12.5 centimeters high.

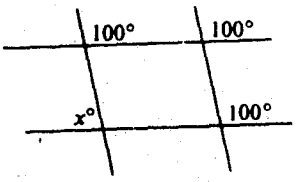
3.	The height of a stack of cans if each can is size S except the can on the bottom of the stack, which is size T	62.5 centimeters
4.	$\frac{5}{6} + 1$	$\frac{10}{3} - 1$



On the number line above, x is the number that corresponds to point S and $RS = ST = TU = UV$.

5.	x	24

	Column A	Column B
6.	 $x + y + z$	 $p + q + r$
7.	$-2 - (-4)$	$-1 + (-5)$



8.	x	100

$r > \frac{s}{3} > 0$

9.	r	s

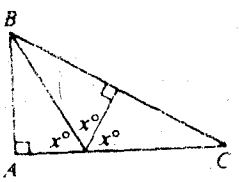
GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	In a certain school, 75 students are enrolled in English, 85 students are enrolled in mathematics, and 60 students are enrolled in both.	
10.	The ratio of the number of students enrolled in both English and mathematics to the number of students enrolled in English	$\frac{3}{5}$

$3x - y = 10$

11.	$\frac{6x - 2y}{3}$	$\frac{19}{3}$

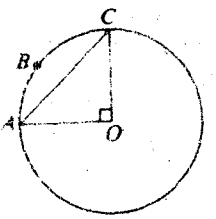


$\angle ABC = y°$

	Column A	Column B
13.	The average of three numbers, the greatest of which is 78	The average of three numbers, the greatest of which is 3

The total cost of renting a boat was originally to be shared equally by 8 people. If the number of people is increased by 4, the cost per person will be $1 less.

14.	The total cost of renting the boat	$25



O is the center of the circle.
The area of ΔACO is 2.

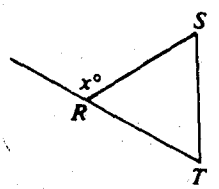
15.	The length of arc ABC	π

GO ON TO THE NEXT PAGE.

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. A supervisor was paid for her travel expenses at the rate of \$0.20 per mile. If she received \$14.40, for how many miles was she paid?

(A) 28.8 (B) 36 (C) 57.6
(D) 72 (E) 144



17. If $RS = ST = TR$ in the figure above, what is the value of x?

(A) 60 (B) 90 (C) 120
(D) 135 (E) 180

18. How many layers of gold leaf, each 0.00001 inch thick, would be required to cover an object with a coating of gold leaf 0.1 inch thick?

(A) 100,000
(B) 10,000
(C) 1,000
(D) 100
(E) 10

19. If $y = 8x + 12$ and $x = z + 2$, what is y in terms of z?

(A) $z + 14$ (B) $8z - 4$ (C) $8z + 10$
(D) $8z + 14$ (E) $8z + 28$

20. If a, b, and c are three consecutive integers and if $a > b > c$, then $(a - b)(a - c)(b - c) =$

(A) 2
(B) 1
(C) 0
(D) −1
(E) −2

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following data.

AVERAGE COSTS TO OPERATE THREE TYPES OF CARS OVER A FOUR-YEAR PERIOD

(based on 15,000 miles per year)

	Standard Car	Compact Car	Subcompact Car
Purchase Price	$8,000	$5,600	$4,800
Interest	2,112	1,479	1,267
Insurance	2,000	2,000	2,000
Maintenance/Tires	1,120	1,080	920
Fuel*/Oil	6,429	4,500	3,000
Subtotal	19,661	14,659	11,987
Resale Value	−2,000	−1,400	−1,200
Total Cost to Operate the Car	$17,661	$13,259	$10,787

AVERAGE ANNUAL SAVINGS* THROUGH CAR-POOLING TO WORK RATHER THAN DRIVING ALONE

Type of Car	Annual Cost Driving to Work Alone	Annual Savings Per Person			
		2-person Car Pool	3-person Car Pool	4-person Car Pool	5-person Car Pool
Standard	$2,491	$1,146	$1,544	$1,719	$1,843
Compact	1,870	860	1,159	1,290	1,384
Subcompact	1,521	700	943	1,050	1,126

GO ON TO THE NEXT PAGE.

AVERAGE DAILY COST* OF VAN-POOLING TO WORK

Round-Trip Miles	Van Pool Cost per Passenger
20	$1.45
25	1.54
30	1.63
40	1.81
50	1.99
60	2.17

* Based on $1.50 per gallon for fuel

21. What is the difference between the average purchase prices of a standard car and a compact car?

(A) $600 (B) $2,400 (C) $2,800
(D) $3,200 (E) $4,400

22. Over the four-year period, the average cost for insurance on a compact car is approximately what percent of the average total cost to operate a compact car?

(A) 11%
(B) 13%
(C) 15%
(D) 17%
(E) 19%

23. The average daily cost per passenger in a van pool traveling 50 miles round trip to work is approximately what percent greater than the average daily cost per passenger in a van pool traveling 40 miles round trip to work?

(A) 8%
(B) 10%
(C) 12%
(D) 13%
(E) 18%

24. If the cost of oil is negligible, what is the mileage (average miles per gallon of fuel) of a compact car?

(A) 13
(B) 18
(C) 20
(D) 25
(E) 28

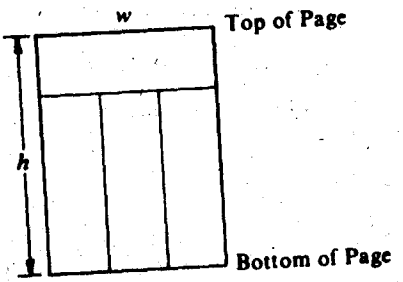
25 If 2 people, who would otherwise be driving alone in subcompact cars, drive in a 2-person car pool using subcompact cars, what is the total of their average annual costs of transportation to work?

(A) $821 (B) $1,400 (C) $1,521
(D) $1,642 (E) $2,342

GO ON TO THE NEXT PAGE.

26. Which of the following equations can be used to find the value of x if 7 less than $5x$ is 5 more than the product of 3 and x?

(A) $5x - 7 = 5 + 3x$
(B) $5x - 7 = 5 + (3 + x)$
(C) $7 - 5x = 5 + 3x$
(D) $7 - 5x = (5 + 3)x$
(E) $7 - 5x + 5 = 3x$



27. The figure above shows the dimensions of a page that has been divided into four rectangular advertising spaces of equal area. What is the height, in terms of h, of one of the advertising spaces at the bottom of the page?

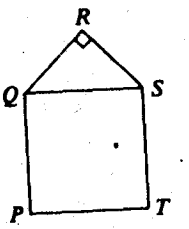
(A) $\frac{1}{4}h$ (B) $\frac{1}{3}h$ (C) $\frac{1}{2}h$
(D) $\frac{2}{3}h$ (E) $\frac{3}{4}h$

28. The ratio of $\left(\frac{1}{2}\right)^3$ to $\left(\frac{1}{2}\right)^4$ is

(A) $\frac{2}{1}$ (B) $\frac{3}{2}$ (C) $\frac{3}{4}$ (D) $\frac{1}{2}$ (E) $\frac{1}{4}$

29. $\left(1 - \frac{x}{x+1}\right) - \frac{1-x}{x+1} =$

(A) 0
(B) 1
(C) $\frac{1}{x+1}$
(D) $\frac{x}{x+1}$
(E) $\frac{-2x}{x+1}$



30. The area of square $PQST$ in the figure above is 100. If $QR = RS$, what is the perimeter of ΔQRS?

(A) $5\sqrt{2} + 10$ (B) 20 (C) $10\sqrt{2} + 10$
(D) 30 (E) $20\sqrt{2} + 10$

FOR GENERAL TEST 25 ONLY

Answer Key and Percentages* of Examinees Answering Each Question Correctly

VERBAL ABILITY					
Section 2			Section 5		
Number	Answer	P+	Number	Answer	P+
1	E	89	1	B	80
2	B	66	2	A	69
3	A	52	3	D	76
4	C	58	4	E	67
5	E	51	5	C	64
6	D	45	6	B	59
7	A	10	7	E	66
8	C	82	8	E	96
9	E	80	9	B	41
10	B	61	10	D	87
11	C	82	11	E	67
12	D	36	12	C	38
13	D	35	13	D	53
14	E	48	14	D	33
15	C	46	15	C	37
16	D	23	16	B	25
17	C	89	17	D	70
18	B	77	18	B	44
19	A	21	19	A	36
20	B	69	20	D	19
21	C	80	21	C	71
22	D	62	22	A	30
23	B	43	23	C	66
24	B	64	24	D	47
25	A	59	25	A	49
26	E	42	26	C	33
27	D	66	27	B	60
28	E	86	28	C	94
29	B	82	29	C	85
30	E	81	30	C	72
31	E	[illegible]	31	E	79
32	A	44	32	E	59
33	E	52	33	D	43
34	D	49	34	C	45
35	A	46	35	A	41
36	A	27	36	C	34
37	A	28	37	E	27
38	C	23	38	D	24

QUANTITATIVE ABILITY					
Section 1			Section 4		
Number	Answer	P+	Number	Answer	P+
1	C	84	1	C	89
2	B	87	2	B	90
3	A	90	3	D	88
4	C	75	4	B	90
5	C	76	5	A	81
6	B	69	6	C	83
7	D	65	7	A	85
8	C	53	8	B	71
9	A	69	9	D	61
10	C	53	10	A	77
11	D	34	11	A	56
12	B	59	12	C	42
13	A	42	13	D	42
14	A	36	14	B	49
15	D	33	15	C	31
16	A	88	16	D	96
17	E	86	17	C	82
18	B	82	18	B	77
19	D	83	19	E	71
20	C	75	20	A	89
21	D	94	21	B	92
22	B	80	22	C	57
23	C	68	23	B	51
24	A	48	24	C	34
25	C	44	25	D	28
26	B	52	26	A	62
27	B	50	27	E	62
28	D	30	28	A	51
29	A	26	29	D	46
30	E	44	30	C	47

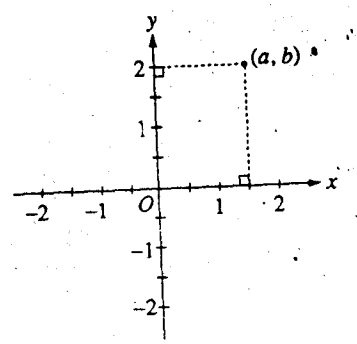
ANALYTICAL ABILITY					
Section 3			Section 6		
Number	Answer	P+	Number	Answer	P+
1	B	82	1	D	68
2	A	75	2	B	92
3	C	89	3	D	85
4	B	31	4	E	74
5	C	47	5	B	76
6	D	58	6	C	88
7	E	48	7	E	68
8	B	88	8	A	82
9	D	86	9	D	69
10	A	53	10	C	63
11	E	76	11	E	70
12	B	42	12	D	80
13	C	51	13	B	33
14	A	56	14	C	31
15	E	76	15	A	16
16	A	26	16	E	49
17	C	75	17	D	52
18	E	28	18	C	34
19	A	35	19	E	33
20	E	20	20	D	23
21	B	23	21	A	20
22	C	41	22	B	31
23	E	21	23	A	50
24	C	37	24	D	31
25	D	24	25	C	30

*Estimated P+ for the group of examinees who took the GRE General Test in a recent three-year period.

T 26 S 1

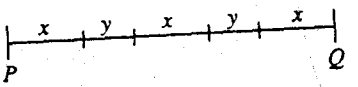
A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	Andy earns \$5 per hour. Susan earns \$6 per hour.	
1.	The amount Andy earns in $6\frac{1}{2}$ hours	The amount Susan earns in $5\frac{1}{2}$ hours
	$6x + 2 = 4$ $3y + 1 = 2$	
2.	x	y
3.	$10.01 + 1.1$	11.1



4.	a	b
	The total cost of m equally priced flashlight batteries is p dollars.	
5.	$\frac{m}{p}$	1

	Column A	Column B
	$0 < x < 1$	
6.	$\frac{1}{x}$	x
7.	The radius of a circle with circumference 9π	4.5



$x - y = 1$ and the length of PQ is 13.

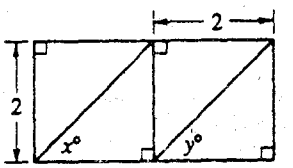
8.	x	2.5
9.	$x + 7$	$(x + 7)^3$
	r, s, and t are positive integers, and $r < s < t$	
10.	rt	s^2
11.	$\frac{\sqrt{3}}{2}$	$\frac{3}{4}$

GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

Column A	Column B
$2x^2 = (2x)^2$	
12. x	1
13. The perimeter of a rectangle that has an area of 48 and a diagonal of length 10	The circumference of a circle that has a radius of length $\frac{14}{\pi}$

Column A	Column B
$y = x^2 - 16x + 64$	
14. The least value of y	0



15. x y

GO ON TO THE NEXT PAGE.

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. If a rectangular picture that measures 4 feet from side to side is hung exactly in the middle of a rectangular wall that measures 13 feet from side to side, then the left edge of the picture is how many feet from the left edge of the wall?

(A) 2.0
(B) 3.0
(C) 4.5
(D) 6.5
(E) 9.0

17. $12^2 + 13^2 - \left[2(12)(13)\left(\frac{12}{13}\right)\right] =$

(A) 313
(B) 289
(C) 169
(D) 25
(E) 1

18. One morning a baker used 40 percent of a 50-pound bag of flour. If $\frac{1}{8}$ of the amount used was for doughnuts, how many pounds of flour were used for doughnuts?

(A) $2\frac{1}{2}$
(B) $6\frac{1}{4}$
(C) $15\frac{5}{8}$
(D) 20
(E) 25

19. If $x = 2y = 3z = 36$, then the average (arithmetic mean) of x, y, and z is

(A) 33
(B) 22
(C) 18
(D) 12
(E) 6

20. What is the ratio of the perimeter of a pentagon with each side of length 6 to the perimeter of an octagon with each side of length 6 ?

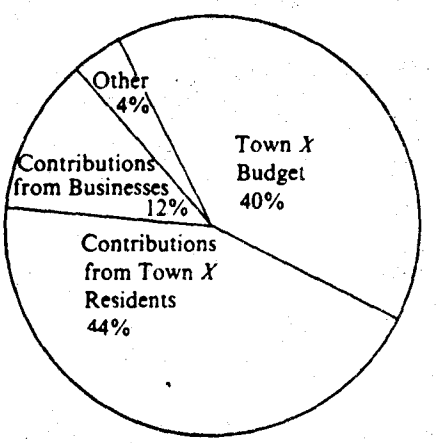
(A) $\frac{5}{6}$
(B) $\frac{4}{5}$
(C) $\frac{3}{4}$
(D) $\frac{2}{3}$
(E) $\frac{5}{8}$

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following data.

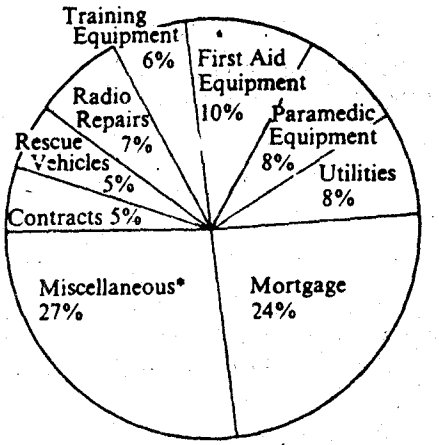
INCOME, EXPENSES, AND CALL STATISTICS FOR
THE TOWN *X* RESCUE SQUAD LAST YEAR

INCOME



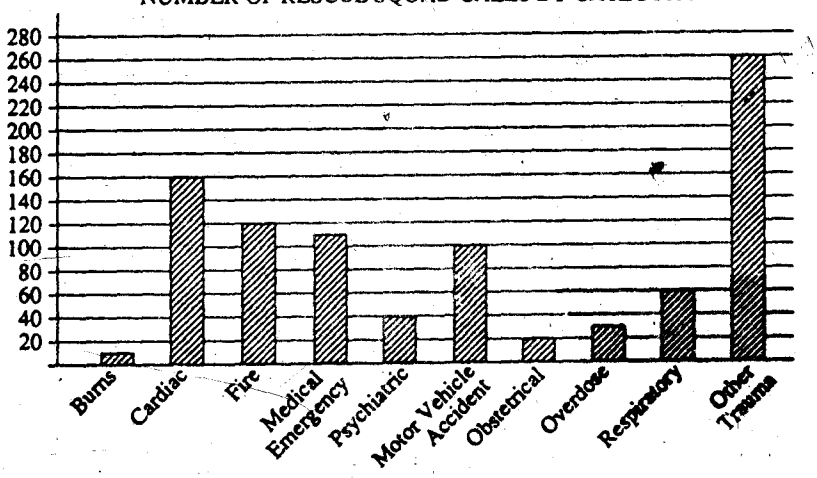
Total Income = $50,000

EXPENSES



Total Expenses = $50,000
*Includes insurance, business supplies, fuel, uniforms, etc.

NUMBER OF RESCUE SQUAD CALLS BY CATEGORY



Total number of calls (including categories not listed) = 1,000

Note: Drawn to scale.

GO ON TO THE NEXT PAGE.

21. What were the rescue squad's total expenses for training, first aid, and paramedic equipment?

(A) $24,000
(B) $12,000
(C) $10,000
(D) $9,000
(E) $6,000

22. For which category listed below are there only two other categories on the graph with fewer rescue squad calls?

(A) Burns
(B) Fire
(C) Psychiatric
(D) Obstetrical
(E) Overdose

23. Contributions to the rescue squad from Town X residents were how much greater than contributions from businesses?

(A) $16,000
(B) $22,000
(C) $24,000
(D) $28,000
(E) $32,000

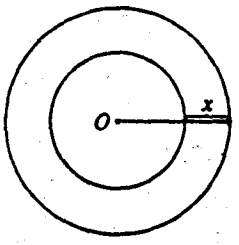
24. How many of the total number of rescue squad calls were in categories not listed?

(A) 70
(B) 80
(C) 90
(D) 100
(E) 110

25. The amount by which the rescue squad's mortgage expenses exceeded expenses for utilities was what percent of expenses for utilities?

(A) 16%
(B) 33%
(C) 67%
(D) 200%
(E) 300%

GO ON TO THE NEXT PAGE



26. The circles above both have center O. If the area of the larger circle is 100π and the area of the smaller circle is 64π, then x is

(A) 2
(B) 3
(C) 4
(D) 6
(E) 18

27. In a certain shipment 2 percent of the boxes shipped were damaged. If the loss per damaged box was \$35 and the total loss due to damage was \$700, how many boxes were shipped?

(A) 2,000
(B) 1,000
(C) 200
(D) 100
(E) 20

28. The sum of n different positive integers is less than 100. What is the greatest possible value of n?

(A) 10
(B) 11
(C) 12
(D) 13
(E) 14

29. If a and b are positive integers, then the ratio of $\frac{a}{b}$ to its reciprocal is

(A) 1
(B) $\frac{a}{b}$
(C) $\frac{b}{a}$
(D) $\frac{a^2}{b^2}$
(E) $\frac{b^2}{a^2}$

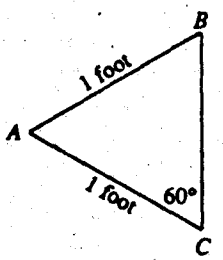
30. If $2^n = 128$, then $(2^{n-1})(5^{n-2}) =$

(A) 10^7
(B) $5(10^6)$
(C) $2(10^6)$
(D) $5(10^5)$
(E) $2(10^5)$

T 26 S 4

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
1.	$2\left(\frac{1}{3}\right)$	$\frac{2}{\frac{1}{3}}$



	Column A	Column B
2.	The perimeter of flat, triangular game board ABC	3 feet

The cost of strawberries is \$0.45 per pint if picked by the customer and \$1.25 per quart already picked. (2 pints = 1 quart)

	Column A	Column B
3.	The cost of 8 quarts of strawberries picked by the customer	The cost of 6 quarts of strawberries already picked

x and y are positive integers and their sum is 13.

	Column A	Column B
4.	x	12

	Column A	Column B
5.	The remainder when a positive odd integer is divided by 2	The remainder when a positive even integer is divided by 2

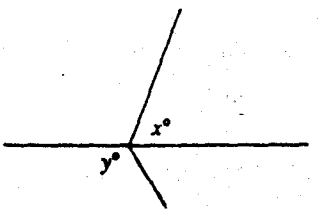
$x \neq 0$

	Column A	Column B
6.	$\frac{2+x}{2}$	$\frac{?+x}{x}$

	Column A	Column B
7.	$-(\lvert 5\rvert + \lvert -5\rvert)$	0

$2 > 3a > 0$

	Column A	Column B
8.	a	a^2



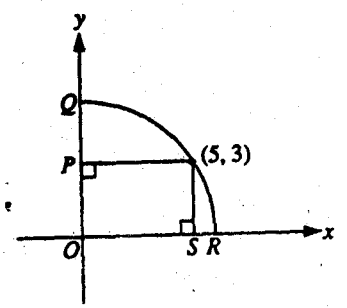
	Column A	Column B
9.	$x + y$	180

	Column A	Column B
10.	The total surface area of a rectangular solid with length 6, width 4, and height 5	120

GO ON TO THE NEXT PAGE

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

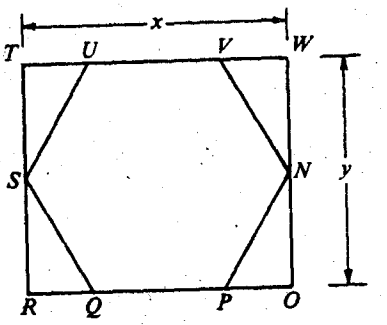
	Column A	Column B
	Questions 11-12 refer to the following definition. For any non-negative integer n, let $n^\diamond = n + 1$.	
11.	$\left(\frac{8}{2}\right)^\diamond$	$\frac{8^\diamond}{2^\diamond}$
	a and b are non-negative integers.	
12.	$(a + b)^\diamond$	$a + b^\diamond$



QR is the arc of a circle that has center O.

13.	$PQ - SR$	2

	Column A	Column B
	In each of the years 1983 and 1984, the total number of automobiles sold in the United States was 1.2 million more than in the previous year.	
14.	Percent increase in the number of automobiles sold in 1983 over 1982	Percent increase in the number of automobiles sold in 1984 over 1983



Polygon $SUVNPQ$ is equilateral and equiangular and $TWOR$ is a rectangle.

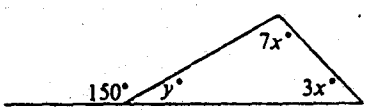
15.	$\frac{x}{y}$	1

GO ON TO THE NEXT PAGE.

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. $\frac{3.81}{0.185}$ is closest to

(A) 2,000
(B) 200
(C) 20
(D) 2
(E) 0.2



17. In the triangle above, the measure of the smallest angle is

(A) 15°
(B) 30°
(C) 45°
(D) 55°
(E) 60°

18. If the price of a certain stock increased by 40 percent to $14.00, what was the price of the stock before the increase?

(A) $10.00
(B) $9.60
(C) $8.40
(D) $7.20
(E) $5.60

19. Which of the following expresses the perimeter of a square region in terms of its area K?

(A) $4K$
(B) $2\sqrt{K}$
(C) $\sqrt{2K}$
(D) $4\sqrt{K}$
(E) $4K\sqrt{K}$

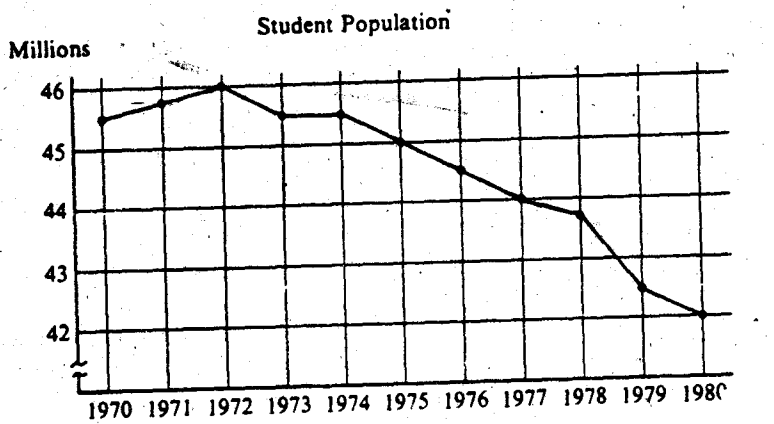
20. If x is an odd integer, for which of the following equations must y be an even integer?

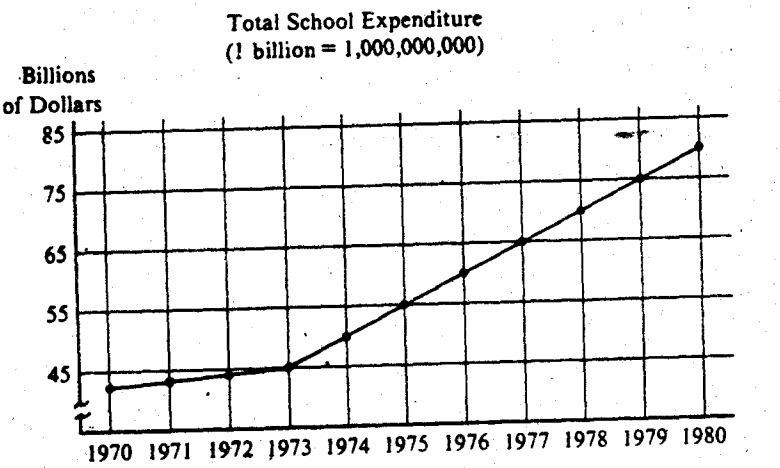
(A) $xy = 5$
(B) $x + y = 8$
(C) $x + 2y = 7$
(D) $2(x + y) = 7$
(E) $2x + y = 6$

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following graphs.

STUDENT POPULATION AND TOTAL SCHOOL EXPENDITURE IN THE UNITED STATES, 1970-1980





Note: Drawn to scale.

GO ON TO THE NEXT PAGE.

21. For how many of the years shown did the student population change by 1 million or more from the previous year?

(A) None
(B) One
(C) Two
(D) Three
(E) Four

22. The per student expenditure in 1980 was approximately

(A) $5,000
(B) $2,000
(C) $1,500
(D) $1,000
(E) $500

23. Which of the following can be inferred from the graphs?

I. The per student expenditure was the same for 1973 and 1974.
II. The per student expenditure was greatest in 1972.
III. The student population decreased at a greater rate from 1978 to 1980 than from 1976 to 1978.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) I, II, and III

24. The percent increase in total school expenditures from 1973 to 1980 was approximately

(A) 35%
(B) 45%
(C) 55%
(D) 80%
(E) 130%

25. What was the average (arithmetic mean) decline per year in student population from 1972 to 1980 ?

(A) 350,000
(B) 364,000
(C) 400,000
(D) 444,000
(E) 500,000

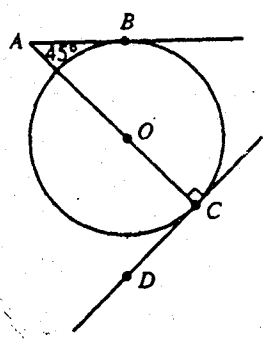
GO ON TO THE NEXT PAGE

26. A certain computer program generates a sequence of numbers $P_1, P_2, \ldots, P_n$ by the rules $P_1 = 1$, $P_2 = 1$, and for $n \geq 3$, $P_n = P_{n-1} + 2P_{n-2}$. Which of the following equals P_5?

(A) 10
(B) 11
(C) 14
(D) 15
(E) 17

27. The roots of the equation $x^2 - x - 6 = 0$ are

(A) 1 and -5
(B) 2 and -3
(C) 3 and -2
(D) 5 and -1
(E) none of the above



28. In the figure above, O is the center of the circle. Line AB intersects the circle only at point B, and line DC intersects the circle only at point C. If the circle has a radius of 2, then $AC =$

(A) 4
(B) $2\sqrt{2}$
(C) $4 + \sqrt{2}$
(D) $4 + \sqrt{3}$
(E) $2 + 2\sqrt{2}$

29. If $x^2 - y^2 = 1$ and the average (arithmetic mean) of x and y is 4, what is the value of $x - y$?

(A) $\frac{1}{8}$
(B) $\frac{1}{4}$
(C) $\frac{1}{2}$
(D) 2
(E) 4

30. At the rate of $\frac{x}{6}$ miles for every y seconds, how many miles can an aircraft travel in z minutes? $(xyz \neq 0)$

(A) $\frac{xy}{6z}$
(B) $\frac{xz}{6y}$
(C) $\frac{xyz}{6}$
(D) $\frac{10xy}{z}$
(E) $\frac{10xz}{y}$

FOR GENERAL TEST 26 ONLY

Answer Key and Percentages* of Examinees Answering Each Question Correctly

VERBAL ABILITY					
Section 2			Section 5		
Number	Answer	P+	Number	Answer	P+
1	B	96	1	E	94
2	E	88	2	A	91
3	C	79	3	B	87
4	B	72	4	C	76
5	A	82	5	C	71
6	D	58	6	C	63
7	E	63	7	A	58
8	B	70	8	D	85
9	D	77	9	A	77
10	A	76	10	D	70
11	C	67	11	E	76
12	A	57	12	B	61
13	E	56	13	E	67
14	B	38	14	D	38
15	D	30	15	B	30
16	C	15	16	B	23
17	A	60	17	B	58
18	B	79	18	E	30
19	E	40	19	E	37
20	A	47	20	B	33
21	D	55	21	B	41
22	E	43	22	A	53
23	D	61	23	D	44
24	E	24	24	A	67
25	E	54	25	C	56
26	D	24	26	C	49
27	C	58	27	D	45
28	D	91	28	D	97
29	B	78	29	A	85
30	D	79	30	B	82
31	D	65	31	D	76
32	E	60	32	D	52
33	C	43	33	A	48
34	B	48	34	C	48
35	C	38	35	C	24
36	C	33	36	A	32
37	A	25	37	B	27
38	B	17	38	E	29

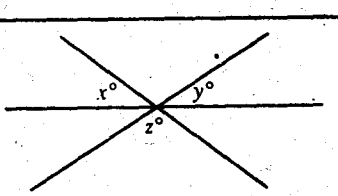
QUANTITATIVE ABILITY					
Section 1			Section 4		
Number	Answer	P+	Number	Answer	P+
1	B	88	1	B	81
2	C	81	2	C	90
3	A	86	3	B	90
4	B	76	4	D	83
5	D	80	5	A	82
6	A	65	6	D	67
7	C	60	7	B	72
8	A	65	8	A	61
9	D	51	9	D	58
10	D	52	10	A	48
11	A	47	11	A	51
12	B	39	12	C	37
13	C	38	13	C	43
14	C	29	14	A	46
15	D	20	15	A	26
16	C	88	16	C	78
17	D	70	17	B	82
18	A	87	18	A	72
19	B	55	19	D	61
20	E	73	20	E	52
21	B	90	21	B	86
22	E	87	22	B	73
23	A	83	23	C	84
24	C	58	24	D	56
25	D	40	25	E	55
26	A	57	26	B	42
27	B	58	27	C	52
28	D	33	28	E	35
29	D	33	29	A	27
30	E	32	30	E	26

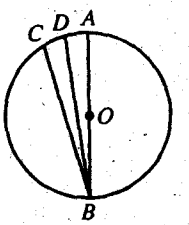
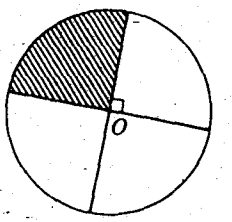
ANALYTICAL ABILITY					
Section 3			Section 7		
Number	Answer	P+	Number	Answer	P+
1	E	78	1	C	79
2	A	66	2	D	48
3	E	83	3	B	54
4	B	67	4	A	50
5	A	65	5	C	45
6	D	49	6	A	46
7	B	49	7	E	41
8	B	86	8	E	79
9	E	43	9	A	69
10	A	47	10	C	75
11	C	76	11	C	84
12	C	82	12	E	83
13	A	70	13	D	80
14	E	61	14	B	72
15	C	43	15	B	58
16	E	25	16	A	53
17	B	53	17	C	46
18	C	51	18	B	44
19	A	41	19	D	57
20	E	40	20	C	54
21	D	32	21	D	36
22	E	19	22	D	25
23	C	76	23	E	59
24	D	73	24	A	55
25	A	66	25	E	51

*Estimated P+ for the group of examinees who took the GRE General Test in a recent three-year period.

T 27 S 2

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
1.	$5[(2 + 2) + 5]$	50
2.	$j - k = 2$ $k - 6 = 4$ j	10
	Richard's salary, which is greater than \$10,000, is 75 percent of Sandra's salary. Ted's salary is 80 percent of Richard's salary.	
3.	Sandra's salary	Ted's salary
4.	$\frac{5}{3} \times 0.60$	1
5.	 $x + y$	$180 - z$
	On a trip, Marie drove 200 miles in 5 hours using gasoline that cost her \$1.49 per gallon.	
6.	Marie's average speed for the trip in miles per hour	Marie's gas mileage for the trip in miles per gallon
7.	$\sqrt{100 + 36}$	16
	The average (arithmetic mean) of 12 and 20 is equal to the average (arithmetic mean) of 15 and x.	
8.	x	16
	The total surface area of cube C equals 150.	
9.	The length of one edge of cube C	4.5
10.	$x + 32y$	$32x + y$

	Column A	Column B
	 O is the center of the circle.	
11.	AB	The average (arithmetic mean) of CB and DB
12.	$(x - 1)(x + 1)$	x^2
	 The circle has center O and radius 1.	
13.	The area of the shaded region	$\frac{\pi}{2}$
	The sum of the lengths of two sides of isosceles triangle K is 7. K has a side of length 4.	
14.	The perimeter of K	11
	S is the set of all fractions of the form $\frac{n}{n+1}$, where n is a positive integer less than 20.	
15.	The product of all the fractions that are in S	$\frac{1}{20}$

GO ON TO THE NEXT PAGE.

Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. $\frac{5}{\frac{5}{4}} =$

(A) $\frac{1}{5}$

(B) $\frac{1}{4}$

(C) 4

(D) 5

(E) $\frac{25}{4}$

17. A 12-inch ruler is marked off in sixteenths of an inch. What is the distance, in inches, from the zero mark to the 111th mark after the zero mark?

(A) $6\frac{1}{4}$

(B) $6\frac{15}{16}$

(C) $7\frac{3}{4}$

(D) $9\frac{1}{4}$

(E) $11\frac{1}{16}$

18. If $(2x - 1)^2 = 0$, then $x =$

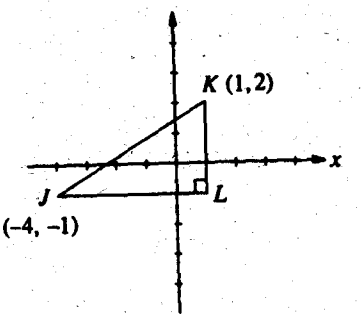
(A) $-\frac{1}{4}$

(B) $-\frac{1}{2}$

(C) 0

(D) $\frac{1}{2}$

(E) $\frac{1}{4}$



19. In the figure above, if JL and KL are parallel to the x and y axes, respectively, what is the area of $\triangle JKL$?

(A) 4.5
(B) 5
(C) 7.5
(D) 8
(E) 15

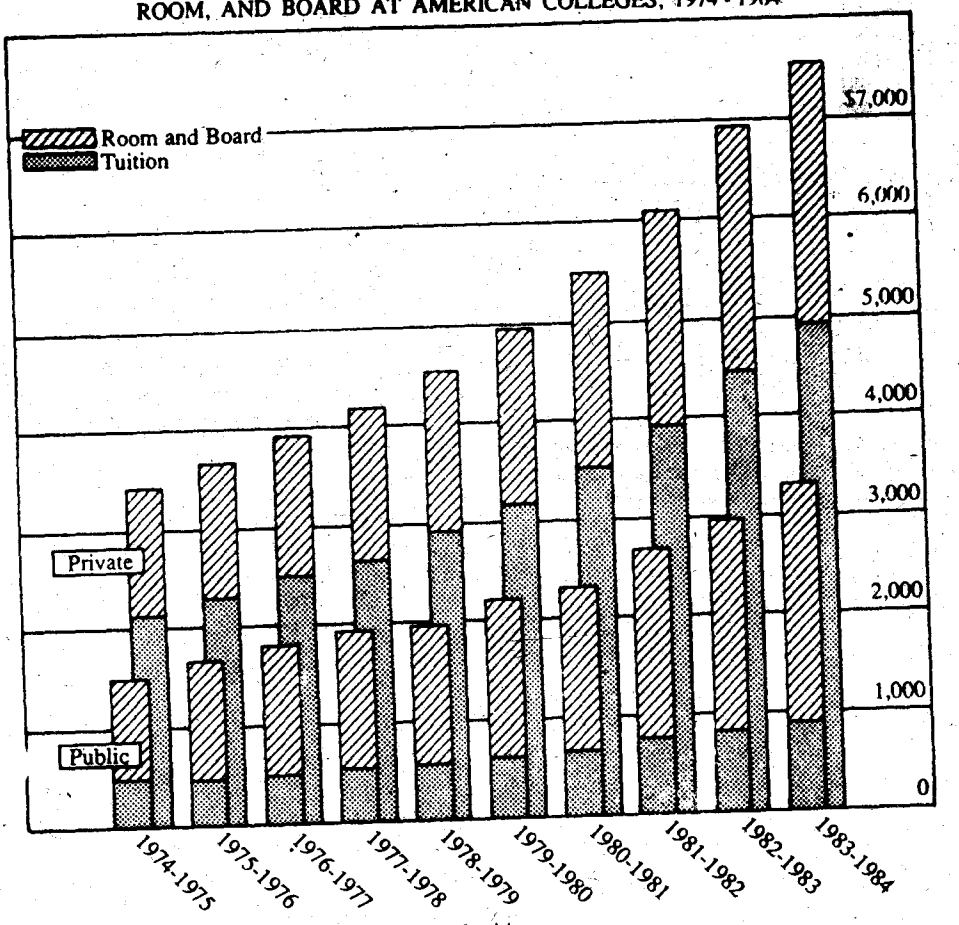
20. Which of the following is equal to 25,000,000?

(A) 25×10^7
(B) 2.5×10^{-7}
(C) $(2 \times 10^6) + (5 \times 10^5)$
(D) $(20 \times 10^{-7}) + (5 \times 10^{-6})$
(E) $(2 \times 10^7) + (5 \times 10^6)$

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following graph. In these questions, all references to *charges* should be interpreted as the *average annual charges* shown on the graph.

AVERAGE ANNUAL TOTAL CHARGES* FOR UNDERGRADUATE TUITION, ROOM, AND BOARD AT AMERICAN COLLEGES, 1974 - 1984



*The total charge consists of room, board, and tuition.

Note: Drawn to scale.

GO ON TO THE NEXT PAGE.

21. In which school year shown was the total charge for undergraduate tuition, room, and board at public colleges most nearly equal to $3,000 ?

(A) 1983-1984
(B) 1982-1983
(C) 1981-1982
(D) 1980-1981
(E) 1979-1980

22. Which of the following charges increased by less than $1,000 from the first to the last of the ten years represented on the graph?

(A) Tuition at public colleges
(B) Room and board at public colleges
(C) Total charge at public colleges
(D) Tuition at private colleges
(E) Total charge at private colleges

23. For how many of the school years shown was the total charge at private colleges at least $3,000 more than the total charge at public colleges?

(A) Two
(B) Three
(C) Four
(D) Five
(E) Six

24. In the 1978-1979 school year, the ratio of the total charge at private colleges to the total charge at public colleges was closest to

(A) $\frac{5}{3}$
(B) $\frac{9}{5}$
(C) $\frac{2}{1}$
(D) $\frac{9}{4}$
(E) $\frac{3}{1}$

25. For the school year in which the charge for room and board at public colleges was most nearly equal to $2,000, what was the approximate charge for tuition at private colleges?

(A) $750
(B) $3,500
(C) $3,900
(D) $4,500
(E) $4,900

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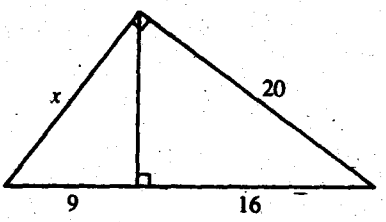


26. What is the value of x in the figure above?

(A) 12
(B) 12.5
(C) 15
(D) $9\sqrt{3}$
(E) 18

27. The number 10^{30} is divisible by all of the following EXCEPT

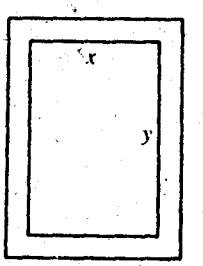
(A) 250
(B) 125
(C) 32
(D) 16
(E) 6

28. If $3x + 1$ represents an odd integer, which of the following represents the next larger odd integer?

(A) $3(x + 1)$
(B) $3(x + 2)$
(C) $3(x + 3)$
(D) $3x + 2$
(E) $3(x + 2) + 1$

29. In the sequence of numbers x_1, x_2, x_3, x_4, x_5, each number after the first is twice the preceding number. If $x_5 - x_1$ is 20, what is the value of x_1?

(A) $\frac{4}{3}$
(B) $\frac{5}{4}$
(C) 2
(D) $\frac{5}{2}$
(E) 4



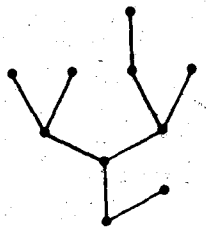
30. The rectangular garden represented in the figure above, with dimensions x feet by y feet, is surrounded by a walkway 2 feet wide. Which of the following represents the area of the walkway in square feet?

(A) $2x + 2y + 4$
(B) $2x + 2y + 16$
(C) $4x + 4y + 8$
(D) $4x + 4y + 16$
(E) $4x + 4y + 32$

T 27 S 4

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

Column A	Column B

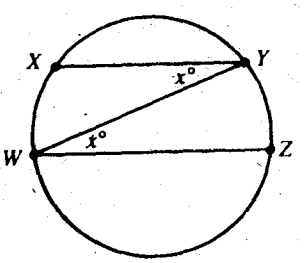


Each ●——● represents a connection and each ● represents a joint.

	Column A	Column B
1.	The total number of joints	The total number of connections

$y = \frac{3x}{4}$, $x = \frac{2z}{3}$, and $z = 20$.

	Column A	Column B
2.	y	11



	Column A	Column B
3.	The length of minor arc WX of the circle	The length of minor arc YZ of the circle
4.	0.203×10^2	2.03×10
5.	40 percent of \$250	80 percent of \$125

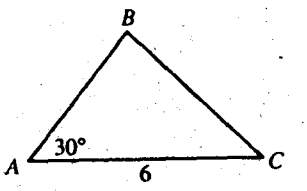
	Column A	Column B

$x \neq 0$

6.	$3x^2$	$(3x)^2$
7.	The greatest prime factor of 15	The greatest prime factor of 14
8.	The total savings on 20 gallons of gasoline purchased for \$1.169 per gallon instead of \$1.259 per gallon.	\$1.80

Three ships, X, Y, and Z, are near the equator. X is 8 miles due west of Z, and Y is 7 miles due north of Z.

9.	The distance between X and Y	9 miles



	Column A	Column B
10.	AB	BC

A retail business has determined that its net income, in terms of x, the number of items sold, is given by the expression $x^2 + x - 380$.

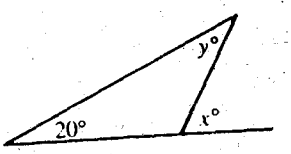
11.	The number of items that must be sold for the net income to be zero	10

GO ON TO THE NEXT PAGE.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

	Column A	Column B
	Rectangular region R has area 30.	
12.	The perimeter of R	25

	Column A	Column B
	$x^2 = 16$ $y^3 = 64$	
14.	x	y



$x < 90$

13	y	70

15.	$\frac{2^{30} - 2^{29}}{2}$	2^{28}

GO ON TO THE NEXT PAGE.

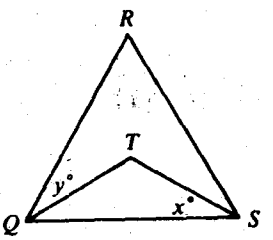
Directions: Each of the Questions 16-30 has five answer choices. For each of these questions, select the best of the answer choices given.

16. A certain post office imposes a service charge of \$0.75 per order on any money order in the amount of \$25.00 or less, and \$1.00 per order on any money order in an amount from \$25.01 through \$700.00. If Dan purchases 3 money orders in the amounts of \$18.25, \$25.00, and \$127.50, what is the total service charge for his money orders?

(A) \$1.75
(B) \$2.25
(C) \$2.50
(D) \$2.75
(E) \$3.00

17. If $\frac{1}{4}(1 - x) = \frac{1}{16}$, then $x =$

(A) $\frac{15}{64}$
(B) $\frac{1}{4}$
(C) $\frac{3}{4}$
(D) $\frac{15}{16}$
(E) 4



Note: Figure not drawn to scale.

18. In the figure above, QRS is an equilateral triangle and QTS is an isosceles triangle. If $x = 47$, what is the value of y?

(A) 13
(B) 23
(C) 30
(D) 47
(E) 53

19. $\frac{m + n}{4 + 5} =$

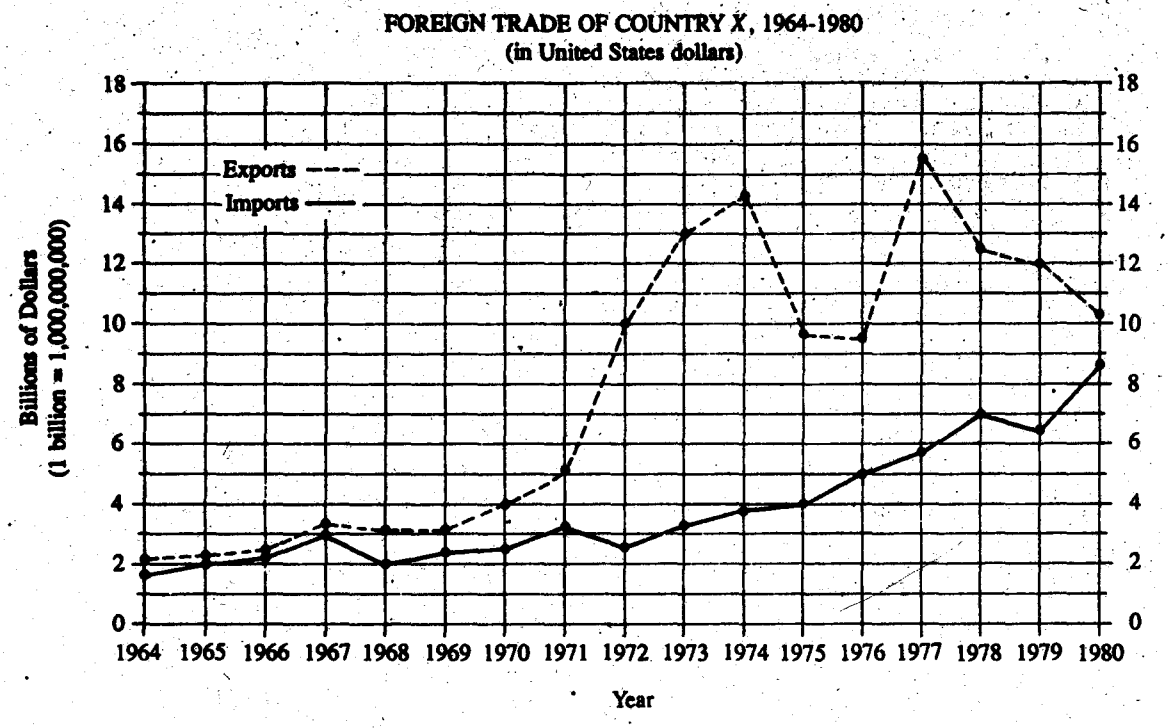
(A) $\frac{m + n}{4} + \frac{m + n}{5}$
(B) $\frac{m + n}{9} + \frac{m + n}{9}$
(C) $\frac{m}{5} + \frac{n}{4}$
(D) $\frac{m}{4} + \frac{n}{5}$
(E) $\frac{m}{9} + \frac{n}{9}$

20. What is the circumference of a circle with radius 8 ?

(A) $\frac{8}{\pi}$
(B) $\frac{16}{\pi}$
(C) 8π
(D) 16π
(E) 64π

GO ON TO THE NEXT PAGE.

Questions 21-25 refer to the following graph.



Note: Drawn to scale.

GO ON TO THE NEXT PAGE

21. For which year shown on the graph did exports exceed the previous year's exports by the greatest dollar amount?

(A) 1972
(B) 1973
(C) 1975
(D) 1977
(E) 1980

22. Which of the following is closest to the amount, in billions of dollars, by which the increase in exports from 1971 to 1972 exceeds the increase in exports from 1972 to 1973 ?

(A) 1.9
(B) 3.9
(C) 5.0
(D) 6.1
(E) 8.0

23. In 1974 the dollar value of imports was approximately what percent of the dollar value of exports?

(A) 4%
(B) 17%
(C) 27%
(D) 79%
(E) 367%

24. For how many years shown on the graph did exports exceed imports by more than 5 billion dollars?

(A) Nine
(B) Seven
(C) Six
(D) Five
(E) Four

25. If it were discovered that the import dollar amount shown for 1978 was incorrect and should have been $5.3 billion instead, then the average (arithmetic mean) import dollar amount per year for the 17 years would be how much less?

(A) $100 million
(B) $53 million
(C) $47 million
(D) $17 million
(E) $7 million

GO ON TO THE NEXT PAGE.

26. On the number line, 1.4 is halfway between which of the following pairs of numbers?

(A) -1.4 and 2.4
(B) -1 and 2
(C) -0.3 and 3.1
(D) 0.15 and 1.55
(E) 0.4 and 1

27. If a and b are both positive even integers, which of the following must be even?

I. a^b
II. $(a + 1)^b$
III. $a^{(b+1)}$

(A) I only
(B) II only
(C) I and II only
(D) I and III only
(E) I, II, and III

28. If t tablets cost c cents, then at this rate how many cents will 5 tablets cost?

(A) $5ct$
(B) $\frac{5c}{t}$
(C) $\frac{c}{5t}$
(D) $\frac{5t}{c}$
(E) $\frac{t}{5c}$

29. If a rectangular block that is 4 inches by 4 inches by 10 inches is placed inside a right circular cylinder of radius 3 inches and height 10 inches, the volume of the unoccupied portion of the cylinder is how many cubic inches?

(A) $6\pi - 16$
(B) $9\pi - 16$
(C) $160 - 30\pi$
(D) $60\pi - 160$
(E) $90\pi - 160$

$$x - y + z = 0$$
$$2x + y + 3z = 0$$

30. In the system of equations above, if $z \neq 0$, then the ratio of x to z is

(A) $-\frac{2}{1}$
(B) $-\frac{4}{3}$
(C) $-\frac{1}{2}$
(D) $\frac{3}{4}$
(E) $\frac{4}{3}$

FOR GENERAL TEST 27 ONLY

Answer Key and Percentages* of Examinees Answering Each Question Correctly

VERBAL ABILITY					
Section 1			Section 5		
Number	Answer	P+	Number	Answer	P+
1	A	94	1	A	90
2	C	91	2	C	94
3	A	77	3	E	69
4	C	66	4	E	71
5	A	61	5	E	51
6	E	53	6	D	58
7	E	27	7	E	36
8	E	82	8	B	86
9	B	83	9	E	91
10	E	65	10	D	80
11	C	81	11	A	79
12	D	53	12	B	42
13	A	47	13	B	37
14	C	45	14	B	30
15	D	33	15	E	27
16	B	28	16	B	45
17	D	49	17	B	86
18	B	47	18	D	82
19	B	37	19	A	47
20	B	68	20	D	61
21	B	60	21	C	58
22	A	72	22	D	37
23	D	37	23	A	68
24	E	58	24	B	69
25	D	46	25	B	49
26	A	61	26	B	40
27	D	39	27	C	55
28	C	93	28	D	94
29	C	81	29	A	78
30	E	79	30	D	80
31	D	80	31	E	81
32	C	79	32	B	84
33	D	33	33	E	44
34	C	31	34	C	36
35	C	34	35	D	37
36	A	22	36	A	38
37	D	29	37	B	30
38	A	17	38	E	22

QUANTITATIVE ABILITY					
Section 2			Section 4		
Number	Answer	P+	Number	Answer	P+
1	B	95	1	A	93
2	A	83	2	B	84
3	A	81	3	C	84
4	C	70	4	C	81
5	C	78	5	C	82
6	D	77	6	B	83
7	B	74	7	B	76
8	A	71	8	C	74
9	A	72	9	A	76
10	D	83	10	D	64
11	A	74	11	A	75
12	B	72	12	D	49
13	B	62	13	B	66
14	D	24	14	D	19
15	C	19	15	C	20
16	C	84	16	C	93
17	B	80	17	C	78
18	D	72	18	A	66
19	C	71	19	E	68
20	E	63	20	D	64
21	B	91	21	D	89
22	A	89	22	A	81
23	C	74	23	C	71
24	D	61	24	B	76
25	C	43	25	A	36
26	C	60	26	C	60
27	E	52	27	D	50
28	A	55	28	B	45
29	A	44	29	E	41
30	D	36	30	B	41

ANALYTICAL ABILITY					
Section 3			Section 6		
Number	Answer	P+	Number	Answer	P+
1	C	76	1	E	76
2	B	90	2	B	87
3	E	55	3	D	75
4	E	52	4	C	85
5	E	55	5	E	79
6	C	75	6	E	66
7	B	60	7	B	87
8	A	89	8	C	84
9	B	88	9	D	80
10	B	63	10	B	59
11	D	72	11	C	46
12	D	57	12	A	71
13	E	31	13	A	18
14	B	75	14	E	44
15	A	27	15	A	66
16	E	53	16	A	66
17	C	58	17	E	50
18	A	41	18	C	50
19	A	58	19	D	39
20	A	37	20	A	37
21	E	18	21	A	27
22	C	40	22	E	32
23	D	66	23	D	75
24	B	24	24	A	61
25	D	22	25	D	23

*Estimated P+ for the group of examinees who took the GRE General Test in a recent three-year period.